Department of Mines and Energy
Government of Newfoundland and Labrador

ANNUAL REPORT FOR 1983

compiled

by

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FOREWORD

Prior to the creation of the Department of Mines and Energy in 1973, the Mines Branch reported annually on its activities as part of the predecessor Department. At that time, Energy was not formally identified as a Branch of any Department.

Since 1973, the new Department (Mines and Energy) has not produced an Annual Report, although the Mineral Development Division has been publishing a comprehensive technical report on field surveys and related activities. That report has been regarded as a very useful and informative document even though it covers only the activities of one Division in the Department.

Recognizing the usefulness of an Annual Report as evidenced by public inquiries and its value as the only document which records the activities of the whole Department for the year it covers, Mines and Energy has produced the first of what is intended to be a continuing series of Annual Reports.

A great deal of credit for the effort which went into the production is due the Division Directors, Section Heads, the Assistant Deputy Minister and, particularly, the Publication and Information Section, which assembled the required information, compiled the report and saw it through to completion.

John H. McKillop
Deputy Minister

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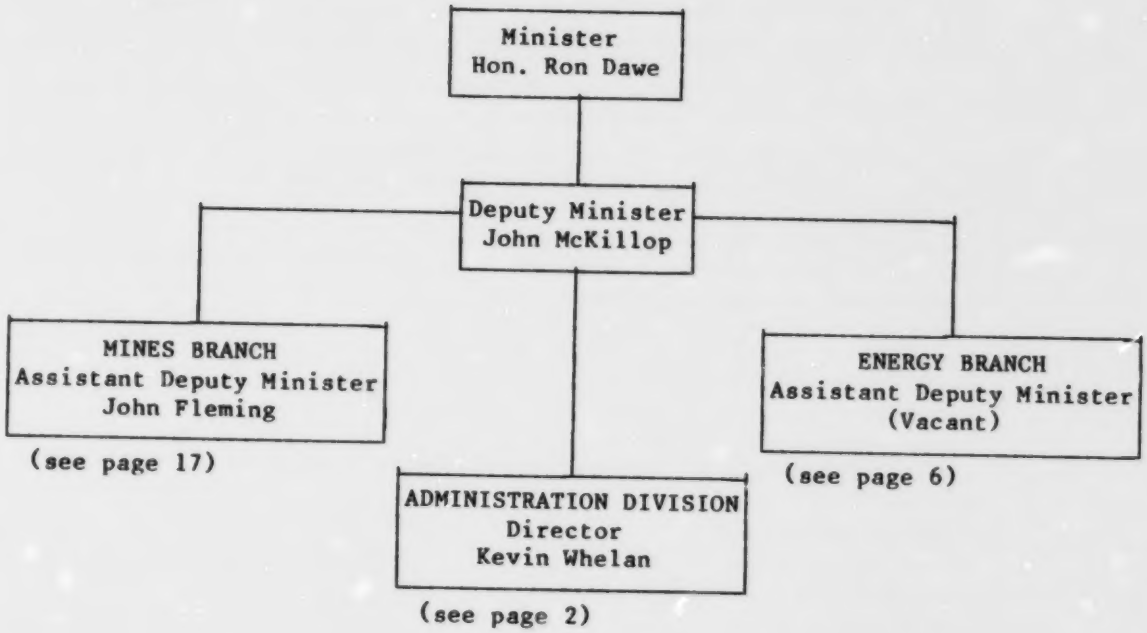
ORGANIZATIONAL CHART
DEPARTMENT OF MINES AND ENERGY
1983



ADMINISTRATION DIVISION

DEPARTMENT OF MINES AND ENERGY

The Administration Division's work encompasses the entire Department. Functions are divided into three areas: administration, accounting and registry services. A breakdown of the functions is as follows:

i) Administration

- . General administration, staffing and personnel
- . Budget co-ordination, preparation and monitoring
- . Annual Salary Estimates preparation
- . Accommodations, maintenance and security
- . Liaison - Government Departments / Agencies and representation on committees, boards and at meetings

ii) Accounting

- . Invoice processing
- . Travel payments
- . Payroll services (attendance, leave, payroll and salary monitoring)
- . Revenue collection
- . Financial reports
- . Inventory recording and control
- . Reconciliations
- . Budget monitoring
- . Requisition (for goods and services) processing

iii) Registry Services

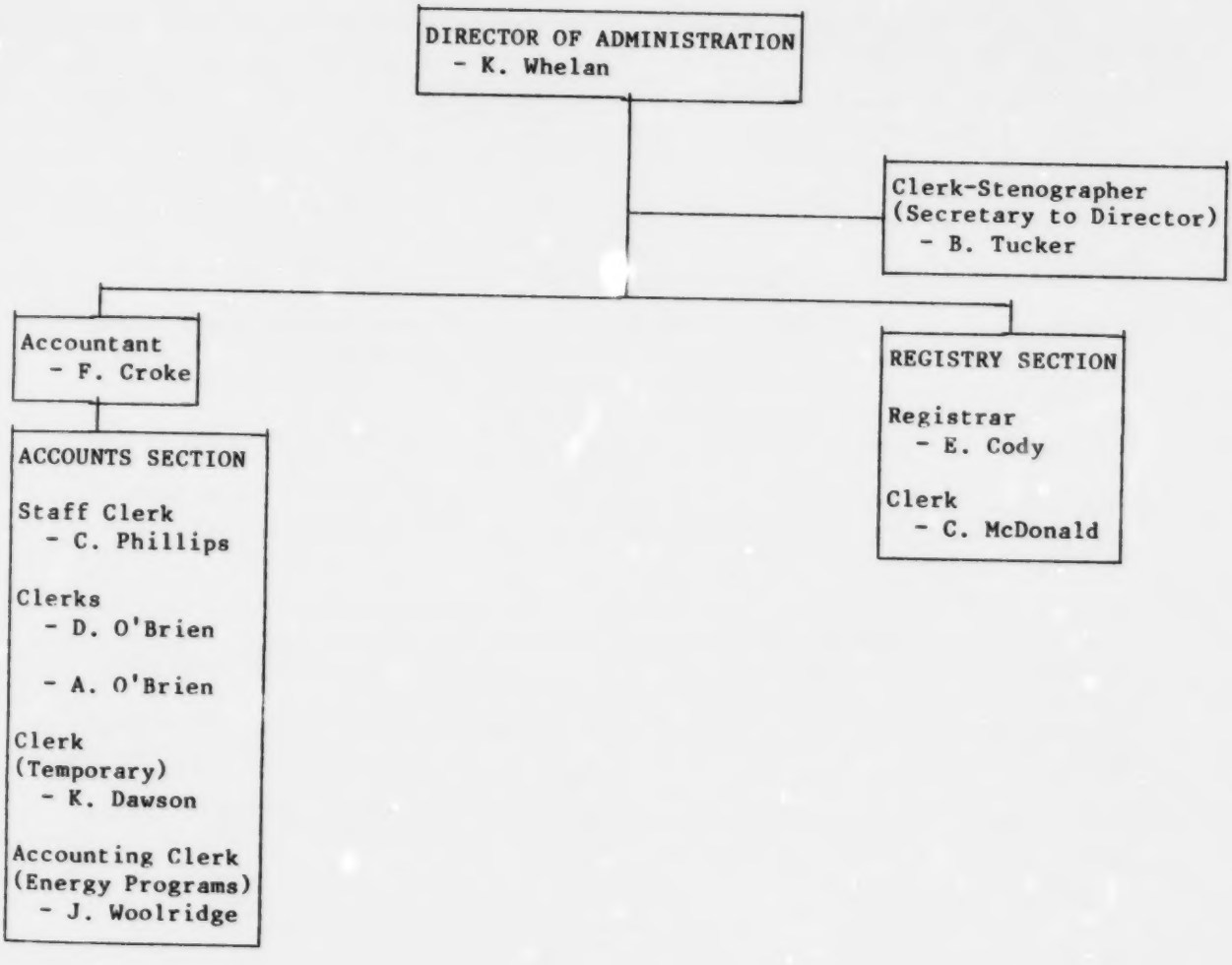
- . Correspondence filing, indexing and retrieval
- . Mail receiving, sorting and distribution
- . Ordering, inventory and distribution of general office supplies
- . Forms and document retention

The "permanent staff" complement of 78 was increased by eight (8) new positions in fiscal year 1983-84 to the present complement of 86. Four (4) positions were approved in each of the Energy Branch and the Mines Branch. At year end, fifty-two (52) approved temporary positions and three (3) co-op students were included in the total staff complement. Thirty-two (32) technical and nontechnical staff were hired during 1983 field season.

The department's gross budget for 1983/84 fiscal year exceeded $8 million and the net budget amounted to approximately $5 million (excluding Newfoundland and Labrador Hydro and the Petroleum Directorate).

DEPARTMENT OF MINES AND ENERGY

Administration Division



REPORT OF THE ACCOUNTANT

The Accounting Section is responsible for the management of financial services, internal systems and accounting operations of the Department. There are currently six employees, 4 permanent and 2 temporary, in the Accounting Section.

Major activities during 1983:

- Provision of accounting services to the Department:
  - Acquisition of goods and services
  - Invoice processing
  - Travel claim payments
  - Payroll services

- Preparation and monitoring of Departmental budget

- Preparation and submission of claims to federal government with respect to the following federal/provincial cost-shared agreements:
  - Conservation & Renewable Energy Demonstration
  - Industrial Energy Conservation
  - Interchange Canada

- Production of financial reports and other data to satisfy departmental and interdepartmental requirements (i.e. salary monitoring, C.R.E.D.A. monthly statements, etc.)

- Collection of revenue from sale of goods and services, quarry permit fees and royalties, mining licences and leases, and reimbursement of cost-shared expenditures, etc.

- Preparation of year end financial statements for inclusion in the annual Public Accounts.

- Provision of support services to the staff of the Auditor General during annual audit.

STATEMENT OF EXPENDITURE - RELATED REVENUE*

DEPARTMENT OF MINES AND ENERGY

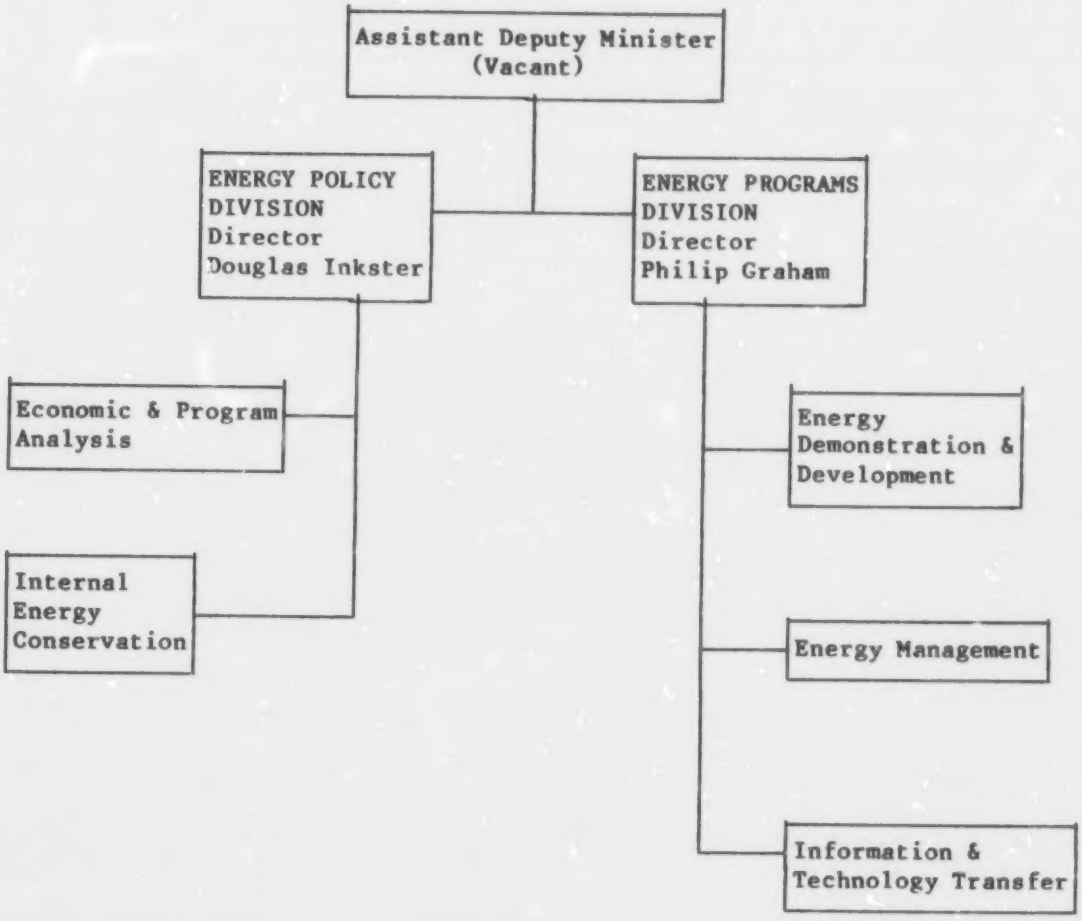
FOR 1983/84

	Budget	Actual Expenditure
Minister's Office	$ 122,000	$ 70,541
General Administration	1,039,300**	389,442**
Less Related Revenue	(11,600)	(1,160)
Mineral Development	2,815,100	2,726,300
Less Related Revenue	(310,900)	(163,247)
Mineral Lands & Mines	195,500	167,977
Less Related Revenue	(25,000)	(4,983)
Mines Management	376,000	349,781
Energy Policy Development	443,500	365,167
Less Related Revenue	(116,000)	(78,573)
Conservation & Renewable Energy Resource Development	3,835,000	2,238,551
Less Related Revenue	(3,054,000)	(1,257,145)
Net	$ 5,315,900	$ 4,802,652

* Petroleum Directorate and Nfld. and Labrador Hydro figures not included.

** The Budget figure includes expenditures voted in other Departments; these expenditures are not included in the Actual Expenditures of this Department.

ORGANIZATIONAL CHART
ENERGY BRANCH



ENERGY BRANCH

ENERGY PROGRAMS DIVISION

PERSONNEL

The Energy Programs Division has the mandate to develop and deliver programs promoting energy conservation and management and the utilization of alternate and renewable energy resources and technologies.

To accomplish this mandate in 1983-84 the division had 21 staff organized in four sections:

1) Administration Section:

2 staff to manage the division.

Director - Philip Graham P. Eng.

Secretary - Jo Hayden

2) Energy Information and Technology Transfer Section:

4 staff to look after the energy library, publications, audio-visual materials, publicity, media events, etc. for the Energy Branch.

Manager - Clarissa Dicks replaced by Juanita Keel-Ryan October, 1983

Information Officer - Dale Fitzpatrick replaced by Wade Kearley January, 1984

Draughtsperson - Charity Newhook

Librarian - Mary Verghese

3) Energy Demonstration and Development Section:

6 staff whose main job in 1983-84 (together with the Information and Technology Transfer Section) was the implementation of the federal-provincial CREDA program (Conservation and Renewable Energy Demonstration Agreement).

Manager - John Drover P. Eng.

Projects Coordinator - Juanita Keel-Ryan, vacant since October, 1983

Residential Energy Information Officer - Jo Heringa

2 Engineering Co-op students - (3 work terms). Tom Connors, Kevin Brown, Dennis Martin, John Crocker, Kevin Keating

Secretary - Sabrina Mathusz

4) Energy Management & Audit Section:

9 staff whose job in 1983-84 was the implementation of the federal-provincial NEAP program (National Energy Audit Program)

Manager - Don Driscoll P. Eng.

(3) Technician III's - Jonathan Candy, Gerry Healey, Rod Parsons

(3) Technician II's - John Coleman, Ed Sexton, Norman Tobin

Statistician - Eugene Trickett

Secretary - Barbara Snelgrove

PROGRAMS

As noted above, the two main programs were (A) CREDA and (B) NEAP which are federal-provincial cost shared agreements with a funding

ratio of 80% federal and 20% provincial.

In addition, two provincial programs were approved with funding to start in 1984-85. These are (C) Woodfuel Development Program and (D) Energy Management Program for Provincial Public Buildings.

The balance of the report describes these four programs.

(A) CREDA

INTRODUCTION

The Conservation and Renewable Energy Demonstration Agreement (CREDA) is a federal-provincial cost-shared program to develop and demonstrate promising new technologies which exploit renewable energy resources, conserve energy or make its use more efficient. The program is designed to develop broad public awareness of the potential of renewable energy and conservation technologies and to create employment in new or existing industries. The agreement was signed in June of 1979 and expired on March 31, 1984 with a one year clean-up period to March 31, 1985, allowing completion of approved projects.

The focus of the program has been on energy conservation in buildings and on woodchips and peat as alternative fuels. There are approximately 210 CREDA demonstration projects underway: a) 165 on energy conservation in buildings, including 115 residences and 50 larger buildings of all types, b) 45 on alternative energy sources, including 30 for residences and 15 for institutions and businesses.

BUDGET

Total estimated CREDA expenditures over 5 years are: $7.2 million by Canada (80%) and $1.8 million by Newfoundland (20%). Estimated expenditures for 1983/84 are $2.6 million comprising the following elements:

a) residential energy conservation	$ 558,000
b) conservation for businesses and institutions	1,033,000
c) residential woodchip burning, hydro, wind and solar	52,000
d) commercial woodburning, fuel peat, wind and solar	490,000
e) administration	467,000
f) total	$2,600,000

ACTIVITIES

Residential Energy Conservation

This group of projects demonstrates the possible savings for new and existing houses from passive solar design, air-tight construction, high insulation levels, heat recovery and many low-cost retrofit measures. Projects include: 15 new low energy houses with a $9,000 average grant; 50 energy conservation retrofits averaging $4,000 each; 18 heat exchangers in a cooperative housing project; 10 small-scale projects with a $5,000 average grant demonstrating greenhouses, heat pumps, solar collectors and heat storage; and training programs in vocational and public schools.

Industrial, Commercial and Institutional Energy Conservation

Demonstration projects are underway in most commercial, industrial and institutional sectors involving waste heat recovery, building controls, process improvements, lighting and low cost energy management measures. Most work is being done in existing buildings and plants, with the exception of an

energy efficient new school and new arena. Projects include: 13 schools, 10 office buildings, 5 swimming pools, 3 fish plants, 2 hospitals, 2 stores and 1 hotel.

Small Scale Woodfuel, Wind, Solar and Energy from Waste

Woodchip burning is the main focus of these demonstrations, with 20 woodchip burners installed in homes across the province. Other projects include: a small hydro development for a remote farm, 2 wind generators and 2 active solar installations, one being photovoltaics for a remote house at Paradise River, Labrador.

Large Scale Woodfuel, Wind and Peat Fuel

Two large wood-fired boiler plants are included in the group of projects: the Gander hospital (completed in the spring, 1983) and the Newfoundland Hardwoods asphalt and creosote plant in Clarenville (to be completed in the summer, 1984). Other woodfuel projects include: six small commercial woodchip burning systems across the province; woodfuel harvesting and handling at Abitibi-Price in Grand Falls; and a number of studies to establish the feasibility of a woodfuel industry in the Bonavista Peninsula region.

Fuel peat work involves two harvesting projects: one at Bishop's Falls for milled peat and the other at St. Shotts for sod peat.

Other renewable energy projects include: the Newfoundland Telephone Company's wind generator and battery storage at its microwave station near Holyrood allowing cyclic operation of the diesel generator; two poultry litter burners; and one project to burn fish oil at the Connors Brothers fishplant at Isle aux Morts.

Administration

Administration of the program involves the expenses and salaries for the staff, office equipment, project development, and information activities related to each project. Emphasis is placed on demonstration and information transfer for each project, with the goal of future replication of the technology. Administration costs are about 18% of the total CREDA expenditures.

RESULTS

Final reports will be published for each project beginning in 1984. Most should be complete by mid-1985. Unpublished results are available at the Energy Branch for the information of all interested persons.

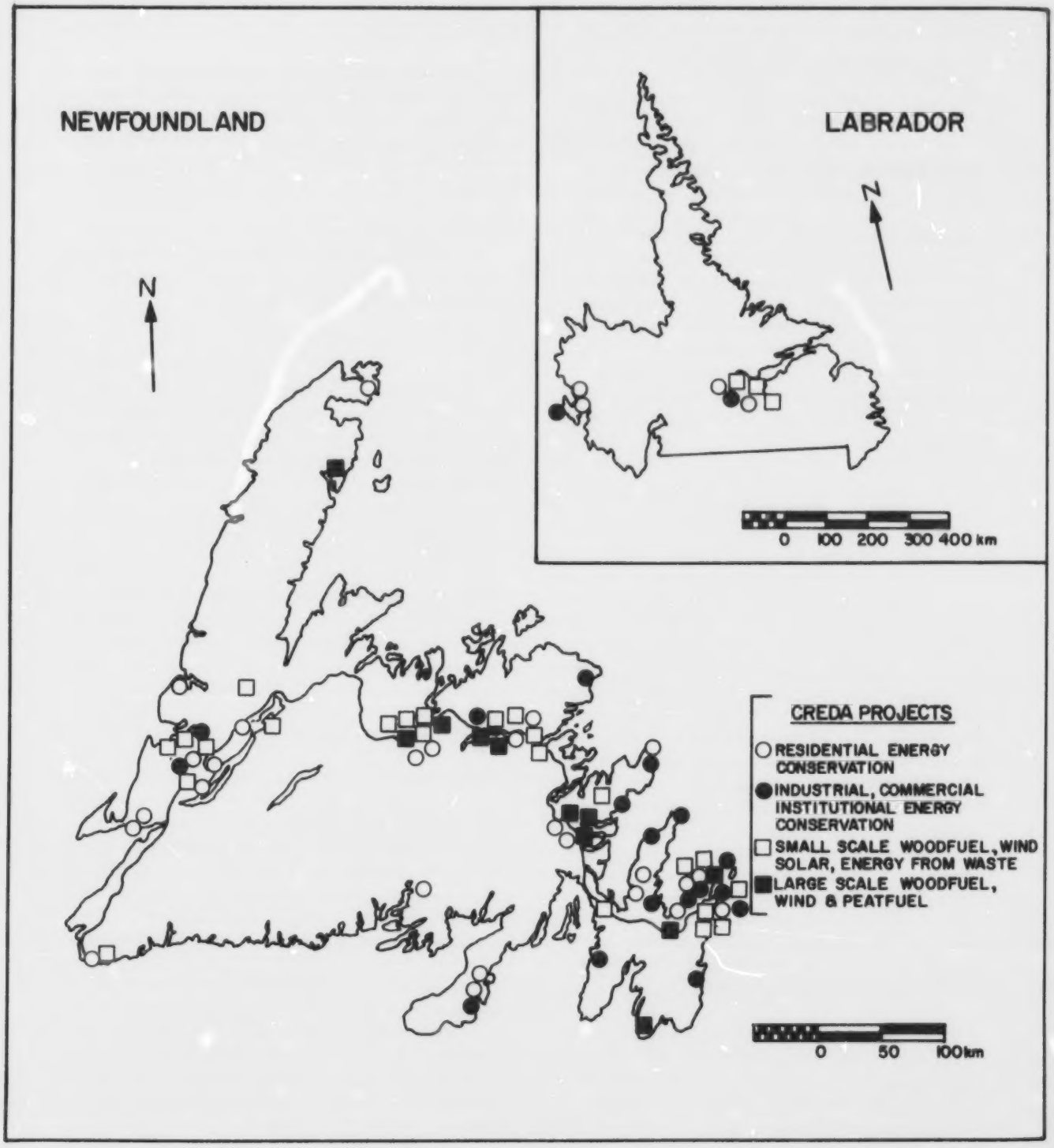
DISTRIBUTION

The accompanying map of Newfoundland and Labrador shows the geographical distribution of CREDA projects.

(B) NEAP

INTRODUCTION

The National Energy Audit Program (NEAP) is funded under an Industrial Energy Conservation Agreement between the Province of Newfoundland and the Government of Canada. The program is administered by the Newfoundland Department of Mines and Energy in conjunction with Energy, Mines and Resources Canada. The program, commonly known as Ener$ave for Industry and Commerce, is designed to offer services to industrial, commercial and institutional organizations to identify options for improving energy efficiency, and consists of energy audits, consultant grants, and seminars/workshops. The main benefits of the pro-


NEWFOUNDLAND
N
LABRADOR
N
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CREDA PROJECTS
RESIDENTIAL ENERGY CONSERVATION
INDUSTRIAL, COMMERCIAL INSTITUTIONAL ENERGY CONSERVATION
SMALL SCALE WOODFUEL, WIND SOLAR, ENERGY FROM WASTE
LARGE SCALE WOODFUEL, WIND & PEATFUEL
0 50 100km

gram are free energy audits and consulting advice assistance grants of up to 90% of the consultant's fee. The agreement was signed in February, 1982 and terminates on March 31, 1984.

BUDGET

The agreement provides $2.9 million. Canada is providing $2.32 million (80%) and the province $0.58 million (20%). For 1983, the budget was $749,400, comprising the following elements:

Mobile energy bus audits	$399,400
Consultant advice assistance grants	300,000
Seminars/Workships, etc.	50,000
Total	$749,400

ACTIVITIES

Mobile Energy Audits

During 1983, 192 audits were performed throughout the province. The number of audits by sector was as follows:

Commercial	68
Industrial	28
Educational	27
Municipal	24

Energy bills totalling $16.24 million were analyzed and potential savings of $4.92 million were found (30.3%). As well, 516,368 MWh of energy was analyzed with potential savings of 185,485 MWh identified (35.9%). Over $1.2 million of potential savings were classed as no, or low-cost, items with relatively short payback periods if implemented.

Sixty-five percent of all audits were conducted outside the Avalon Peninsula, with 47% of these conducted in central Newfoundland. Twenty-two audits were completed in Labrador. All Labrador audits were done using an Osbourne microcomputer, portable testing equipment, and two-man crews. The total floor area in all buildings amounted to over 50 ha.

A summary of 1983 audit activity is given in Table 1.

Consulting Advice Assistance Grants

Approval of grants began in March, 1983. Forty-eight clients submitted application forms, of which 38 were given preliminary approval to proceed. The value of grants for these 38 clients was $185,482. Fourteen consultants' proposals (grant value of $76,657) were approved. Nine consultants' reports were received (grant value $66,032). The consultants identified potential feasible energy savings of 10.28 million kWh compared with 13.30 million kWh identified in the energy audits.

Follow-up Program

In December, 1983, a follow-up program was started to determine what savings had been made among clients audited up to May, 1983. Indications are that, of the 27 clients who responded to date, approximately $157,000 in energy costs had been saved as a result of the audit program. The follow-up program will eventually cover all clients.

(C) Woodfuel Development Program

The objective of this program over the next 5 years is to replace 5 million gallons of oil per year in existing heating plants with 50,000 cords per year of woodfuel. This is to be accomplished by grants to stimulate heating plant conversions to woodfuel and by helping to set up the required fuelwood supply infrastructure. The resulting direct employment should be approximately 100 construction jobs (of a one year average duration) and 100 permanent jobs (mainly for fuel supply).

TYPE OF FACILITY	# OF AUDITS	% OF TOTAL	ENERGY $ AUDITED	POTENTIAL $ SAVINGS	KWH AUDITED	KWH SAVINGS	% $ SAVINGS	% KWH SAVINGS
INDUSTRIAL (EXC FISH PLANTS)	24	12.5	7,295,320	2,567,880	278,983,000	116,933,000	35.2	41.9
FISH PLANTS (SEASONAL)	3	1.6	1,335,540	371,813	36,328,600	11,079,600	27.8	30.5
FISH PLANTS (FULL TIME)	1	0.5	369,221	71,032	8,467,600	1,771,530	19.2	20.9
COMMERCIAL	68	35.4	3,268,060	879,020	70,579,200	21,036,400	26.9	29.8
MUNICIPAL	24	12.5	468,988	88,332	9,267,390	2,199,520	18.8	23.7
RECREATION	18	9.4	548,401	125,681	11,096,000	3,094,910	22.9	27.9
SCHOOLS (1-3 CLASSROOMS)	0	0.0	0	0	0	0	0.0	0.0
SCHOOLS (4-10 CLASSROOMS)	3	1.6	38,395	14,210	1,040,290	451,878	37.0	43.4
SCHOOLS (11+ CLASSROOMS)	24	12.5	758,085	219,920	20,104,200	6,594,810	29.0	32.8
RELIGIOUS (CHURCHES)	7	3.6	62,066	26,340	1,717,350	784,841	42.8	45.7
RELIGIOUS (OTHER)	8	4.2	372,466	117,504	14,218,900	5,104,910	31.5	35.9
HOSPITALS (1-50 BEDS)	1	0.5	38,250	4,169	902,057	127,912	10.9	14.2
HOSPITALS (51+ BEDS)	5	2.6	1,617,030	414,938	61,388,800	15,615,500	25.7	25.4
RESIDENTIAL (APARTMENTS)	5	2.6	53,662	17,328	1,657,540	566,236	32.3	34.2
AGRICULTURE	1	0.5	18,670	3,401	616,075	123,672	18.2	20.1
TOTAL ALL FACILITIES	192	100.0	16,244,200	4,921,770	516,367,000	185,484,000	30.3	35.9

REGIONAL SUMMARY REPORT

ST JOHN'S	54	28.1	5,295,800	1,383,070	156,733,000	42,735,700	26.1	27.3
AVALON PENINSULA	13	6.8	809,102	207,120	22,808,100	6,397,020	25.6	28.0
CLARENVILLE / BONAVISTA	2	1.0	135,650	13,249	2,940,400	422,781	9.8	14.9
BURIN PENINSULA	7	3.6	667,080	204,007	18,095,400	5,847,660	30.6	32.3
CENTRAL NEWFOUNDLAND	59	30.2	6,696,430	2,402,720	243,891,000	108,326,000	35.9	44.4
CORNER BROOK	14	7.3	601,786	177,955	14,247,100	5,433,420	29.6	38.1
WEST COAST (EXC C.BROOK)	21	10.9	1,533,160	349,493	41,915,100	10,609,900	22.8	25.3
NORTHERN PENINSULA	0	0.0	0	0	0	0	0.0	0.0
LABRADOR EAST	12	6.3	286,775	126,633	7,230,500	3,427,790	44.2	47.4
LABRADOR WEST	10	5.2	218,372	57,525	8,615,700	2,283,880	26.3	26.5
TOTAL	192	100.0	16,244,200	4,921,770	516,367,000	185,484,000	30.3	35.9

TOTAL SQ FEET = 5,363,750 INITIAL AVG. KWH/SQ FT = 96.3 AVG. KWH/SQ FT AFTER MODS = 61.69

TABLE 1: Summary of NEAP audit activity in 1983 in Newfoundland

Estimated cost for the 5 year program is $2 million. The budget for 1984-85 is $260,000 including $90,000 for heating plant conversion studies and $100,000 to $70,000 for wood boiler conversions at Newfoundland Hardwoods and the Vocational School in Clarenville.

(D) Energy Management Program for Provincial Public Buildings

The objective of this program is to help reduce the provincial government's annual $40 million energy bill for buildings. The target is an annual energy reduction of $1 million. This is to be accomplished by two main functions:

1) Energy audits and technical advisory service for identifying potential cost effective energy saving measures and advising building operators; and

2) Energy use monitoring and reporting.

The estimated annual cost for the program is $150,000 for staff salaries, expenses and data processing. The budget for 1984-85 is $25,000 for program and software development and computer hardware.

ENERGY BRANCH

ENERGY POLICY DIVISION

MANDATE

The mandate of the Energy Policy Division is to monitor and analyze energy supply and demand, to advise government on energy policy issues, and to coordinate intergovernmental energy activities.

PERSONNEL

During 1983/84 the staff of the Division was composed as follows:

Director
Manager of Program Analysis Section
3 Economists II
Statistician I
Statistical Officer
Internal Energy Coordinator
3 Secretarial staff

BUDGET

The 1983-84 budget for the Division was $443,500. Part of this total was funded by the federal government under the Conservation & Renewable Energy Demonstration Agreement (CREDA) and the Industrial Energy Conservation Agreement (National Energy Audit Program - NEAP).

ACTIVITIES

(1) During 1983, the Energy Policy Division was engaged in the development of a provincial government energy demand restraint program for a period of national or regional energy supply disruption. This program has been developed in preparation for a long-term oil supply emergency rather than an electricity supply disruption, but it is intended to fit any energy shortage. The department has been designated the leading role in government in case of any major energy crisis.

This program has been in preparation for about two years and is similar to those being developed by all other provincial and territorial governments. The Director of the division is presently chairing an interprovincial/federal working party which is producing guidelines for the preparation of such contingency programs.

(2) In connection with the national energy emergency programs, the division has represented the government on the Provincial Advisory Committee to the Energy Supplies Allocation Board, which is responsible to the federal government for the management of all major national energy disruptions.

(3) The division continued to represent the government at meetings of the Northeastern International Committee on Energy, which performs energy related tasks initiated by the annual conference of New England Governors and Eastern Canadian Premiers. These tasks include analyses of energy supply and demand relevant to the northeastern seaboard, plus the evolution of policy concerning offshore developments, energy emergencies, energy security, energy trade within the region, renewable/alternate energy developments of mutual interest, and the preparation of appropriate reports, papers and draft resolutions for the Conference of Governors and Premiers in 1984.

(4) Representatives of the division prepared for and attended the annual meeting of the Interprovincial Advisory Committee on Energy and of the Council of Provincial Energy Ministers held in Regina in September, 1983.

(5) In April the division prepared the government's submission and gave evidence to the National Energy Board on the subject of heavy fuel oil imports. In association with Newfoundland and Labrador Hydro's submission on this subject, this submission contributed to persuading the N.E.B. that the eastern provinces should continue to be permitted to import heavy fuel as required and whenever competitive Canadian supplies are not available.

(6) In cooperation with the Petroleum Directorate and Newfoundland and Labrador Hydro, the division prepared the Government's submission to the National Energy Board on the Province's energy supply and demand up to the year 2005.

(7) An econometric computer-based energy model of the province by sector and energy form was developed for use as an analytical tool for policy assessment purposes. Further work on this project is in progress.

(8) During the year the historical energy data base of the province was updated and improved for comprehensive analysis and model purposes.

(9) Energy supply and demand developments in the province in 1983 were reviewed, and the first of a series of such reports was produced.

(10) An historical energy review of the province from 1970 to 1982 was drafted. In addition to providing a statistical summary of energy demand and supply developments, it summarizes the major energy events and issues of the period.

(11) The sixth annual review of petroleum product and electricity prices in Newfoundland and Labrador was produced.

(12) Division staff helped plan and coordinate the International Energy Days Program, a friendly competition between selected towns in the six New England states and the five eastern provinces. This program, sponsored by the Governors and Premiers every two years, is designed to increase awareness of energy conservation and renewable energy potential in all sectors of the chosen communities. Gander was this province's representative; it was paired with Westerly, Rhode Island, to give a new international cooperative aspect to the event. The paired towns' efforts were recognized by the presentation of a special award for the organizing of community energy projects.

(13) There was a 67 percent response to a municipal energy survey directed at all municipalities with populations over 2500. This survey, planned and organized by the division, is the basis for an analysis of municipal and community energy usage in the province. A special set of guidelines will be prepared to help town administrators reduce their energy costs by as much as 10% of their annual budget. The energy bus audit team visited a number of municipalities to demonstrate low cost energy savings potential.

(14) In cooperation with the Energy Program Division, an energy conservation project for schools has been developed starting in 1984. A conservation guidebook for School Board administrators is being distributed and a demonstration program will be conducted for a selected School Board during 1984.

(15) The Department is responsible for the provincial government's "in-house" energy savings program and, in cooperation with Public Works and other departments, some progress has been made. New accounting procedures have been developed to establish the provincial government's exact energy bill and government buildings have been subject to a series of audits.

This information is still being monitored and evaluated.

(16) 1983 was a particularly active and successful year for promoting residential energy conservation. A six-week course on reducing home energy use was conducted in St. John's in the spring and a booklet based on the lectures has been produced for distribution. A special course on home retrofitting was held in Gander for instructors from all provincial vocational schools, a conservation course was conducted for the Viking Coop Group in St. John's, and a special training session was given for a St. Mary's-the Capes group in conducting a regional residential survey as a New Employment Expansion and Development (NEED) project.

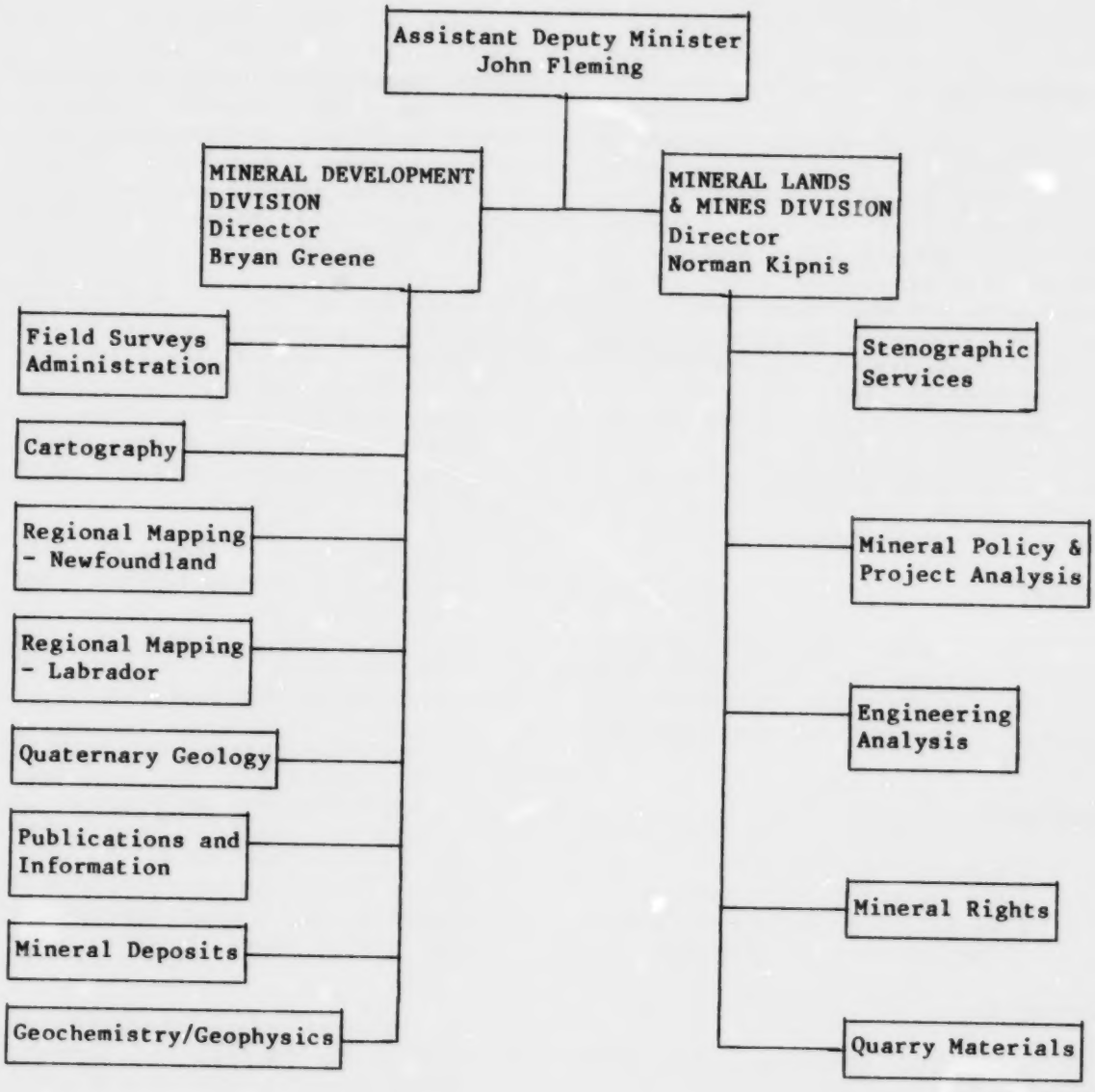
A well attended and publicized course on woodcutting and furnace safety was held in St. John's in the fall with the cooperation of Abitibi-Price, the Central Fire Station and Island Energy Associates.

In addition to the training activities organized by the division, a program promoting energy conservation was conducted through the year via Extension Service talks, radio interviews and production and distribution of a variety of information. During the year, five energy conservation displays were also organized.

Division staff also made useful contributions to energy conservation through its representation on the Canadian General Standards Board panel governing insulation contractors and standards. Staff also contributed substantially to organizing and planning the NLHC/CMHC booklet "Prevention of Moisture Damage to Housing", which has been widely distributed.

An important task of the division which continued through 1983 was the monitoring and assessment of all the energy-related programs, federal and provincial, which are taking place in the province. These evaluations enable the Branch to compare success with similar programs throughout Canada, to ensure that the province is keeping pace, and that an equitable share of federal funding for energy purposes comes to Newfoundland.

ORGANIZATIONAL CHART
MINES BRANCH



MINES BRANCH

MINERAL LANDS AND MINES DIVISION

MINERAL RIGHTS SECTION

INTRODUCTION

The Mineral Rights Section is responsible for administering legislation and policies related to the acquisition of mineral rights. Mineral rights can be obtained by ground staking on the island and map staking in Labrador. Some small areas of the province containing known mineral deposits are classified as Exempt Mineral Land. These areas are not open for staking, but the government may, from time to time, ask for proposals to develop the resources in these areas, as for example, St. Lawrence fluorspar deposits.

BUDGET

The budget for the Mineral Rights Section for the fiscal year 1983-84 was $105,000. Estimated net revenue from fees and map sales was $25,000.

PERSONNEL

1 Manager: Noel F. Gover
1 Geologist: Kenneth Andrews
1 Records Officer: Harold Hannon
1 Cartographer: Gary Martin

ACTIVITES

The main activities for 1983 consisted of:

(1) Recording claims and issuing mineral licences and mining leases.

(2) (a) Reviewing exploration reports for work carried out on mineral licences for compliance with the Mineral Act and Regulations.

(2) (b) Reviewing exploration reports on all other mineral holdings, for example, concessions and fee simple mining grants, for compliance with the Mineral Holdings Impost Act.

(3) Distributing to the exploration sector a quarterly report of the mineral licences cancelled or surrendered, and a monthly microfiche update, to subscribers, of copies of the claims maps which have had changes made to them during the month.

(4) Checking, for accuracy, all documents involving mineral land surrendered to the Crown by plotting the areas on the 1:50,000 scale claims maps and verifying the descriptions.

(5) Recommending changes to legislation, regulations and policies. The procedure for map staking was changed so that a map-staked claim is defined by U.T.M. grid lines. This required considerable change in the regulations to have the new system brought into place.

Several major changes were made in the Mineral Act. Compensation is not payable for mineral lands reverting to the Crown under the provisions of Section 42 of the Act. Claims may now be staked over privately held surface rights without prior permission of the owner. Assessment work done prior to staking may now be applied in an unrestricted manner to the first year's assessment requirement. The stor-

age of diamond drill core and cuttings with the Department of Mines and Energy is permitted on a confidential basis.

The Brinco Act was amended to allow the company to stake claims on its concession areas during 1984 and 1985. For such claims staked in 1985, Brinco will receive extended licences under the Mineral Act. Brinco also surrendered a substantial part of the areas still held under its concession agreement.

(6) With the introduction of map staking in Labrador, it was necessary to replace all of the Labrador claims maps. The older maps did not have the U.T.M. grid printed on them. All the existing mineral land boundaries had to be transferred to the new maps.

Statistical Summary, 1983

No. of Claims Recorded	No. of Claims Surrendered/Cancelled	No. of Claims in good standing on December 31, 1983	No. of Extended Licences issued	No. of Mining Leases issued
4522	7751	15,288	4	3

BRINCO: Area surrendered in 1983 = 306,524 ha; area presently retained = 125,990 ha.

REID LOTS: Area surrendered in 1983 = 88,171 ha; area presently retained = 154,702 ha.

MINES BRANCH

MINERAL LANDS AND MINES DIVISION

QUARRY MATERIALS SECTION

INTRODUCTION

The Quarry Materials Section is responsible for the administration of the Quarry Materials Act (1976) and associated regulations. The main activities of this section deal with the processing and issuance of quarry permits and leases for the removal of sand, gravel and stone, peat and beach material. Permit holders range from individuals to large construction companies. The permits are issued for periods ranging from 1 to 12 months. The quarry leases are generally issued for 5-year periods.

Budget

The budget for the operation of the section for the 1983-84 fiscal year was $73,000.

Personnel

1 Manager: John J. Sullivan
1 Clerk II: JoAnne Burke
1 Survey Inspector: (Vacant)

REPORT

The total production of quarry materials for 1983 was 2,900,000 metric tonnes for a value of $9,320,000. Revenues collected by way of rentals and royalties amounted to $250,000.

Peat production (both horticultural and fuel) was minimal because the areas under permit or lease are in the experimental stages to determine optimum extraction methods. The two largest peat permit areas are at Bishops Falls (50 hectares) and at Island Pond north of Gander (200 hectares). Eight regular (one year) quarry permits were issued for the removal of peat in 1983, and 37 domestic peat permits were issued, mostly in the Avalon Peninsula area for horticultural use.

Survey inspections were made for quarry leases and mining leases at the Harbour Arterial management area, B & M Paving at Quarry Brook, the R.G. Rendell fee simple mining grant at Collier Point, and a mining lease for Consolidated Rambler near Baie Verte.

Monitoring of quarry activities was conducted on five occasions at the Harbour Arterial overpass area during 1983. Because of travel restraints and shortage of personnel, out-of-town quarry surveys were conducted only when needed. Three sites were visited; the H. Wareham quarry, 3 km west of Gander, the Town of Trinity quarry at Trinity, Bonavista Bay, and a quarry site at Pigeon Cove near St. Barbe. As a result of the latter survey, a permit held by Doyles St. Barbe Ltd. was cancelled.

The division received seven complaints concerning illegal removal of quarry materials. These concerned beach removal and were referred to the R.C.M.P. to have the removal stopped.

A total of 174 beach permits were issued during the year. As a result of overuse, removal from Grand Beach on the Burin Peninsula was banned following an on-site investigation. The beaches at Lawn on the Burin Peninsula and at Coombs Cove in Fortune Bay were also examined. This

resulted in the issuance of beach permits allowing total removal of a specified limit.

A beach survey was carried out at Point Verde, Placentia Bay, on December 13 in response to concerns expressed by the Placentia area historical society. They were concerned that the removal of large boulders from that beach could be a factor causing the flooding of part of the Town of Placentia during high tides, which has been happening in recent years.

PERMITS ISSUED IN 1983

Regular Quarry	Highways Quarry	Beach	Domestic Peat	Quarry Leases
163	121	174	37	5

MINES BRANCH

MINERAL LANDS AND MINES DIVISION

ENGINEERING ANALYSIS SECTION

INTRODUCTION

The mandate of Engineering Analysis is to implement policy and regulations governing the establishment, operation and termination of mining properties. The monitoring of mining operations, the evaluation of new mining and processing methods, and the review and analysis of related mineral policy are also within the scope of this section.

BUDGET

The budget for Engineering Analysis for fiscal year 1983-84 was $125,000.

PERSONNEL

The section operated in 1983 with one professional engineer. Two such positions are authorized, but because of staffing problems one position remained vacant.

PROJECTS

Slate

During 1983, Newfoundland slate was investigated to determine its potential use in the construction industry. An abandoned rock quarry near Bay D'Espoir was identified as a possible site for development. A prefeasibility study was completed, samples were analyzed and subjected to appropriate tests, and the results were presented to the architects for the Marine Institute and the Confederation Complex. It has been established that both of these projects will use slate from Bay D'Espoir in portions of the flooring; Marine Institute, 1,000 square metres; Confederation Complex, 4,000 square metres.

Strange Lake

Discussions were held with representatives of Iron Ore Company of Canada (I.O.C.C.) concerning its deposit of niobium (columbium), zirconium, tantalum, beryllium, and rare earth metals in northern Labrador. A preliminary economic evaluation of the deposit will require further work in 1984 to determine the viability of the total project. During a site visit in August, 1983, the area between the deposit and the Labrador coast was scouted from the air to determine if a road route could be identified. The terrain is more favorable and the distance is shorter than any route to Schefferville. The biggest question concerning this property, however, is its precise location. The section of highest potential appears to straddle the Quebec-Newfoundland border as it is now defined. Precise surveying will have to be done to determine the exact location and distribution of the deposit.

Economic Ore Evaluation Computer Program

A student was employed for three months to help to develop a computer model to evaluate an orebody. This model will enable us to calculate the value of the ore in the ground from the results of an exploration drilling program. It will also help determine the relative amounts of overburden, waste, and ore, as well as identify the areas where mining

could most probably start. This program has already been used to evaluate the Strange Lake property.

Baie Verte Mines Monitoring Committee

This committee is composed of provincial and federal representatives appointed to review the Baie Verte operation on a continuous basis because of government financial involvement. Regular meetings with the company provide up-to-date information and results in a monitoring of all aspects of the operation. The major function of Engineering Analysis at these meetings is to review plans and activities from the provincial perspective of resource management.

Mineral Development Agreement

Estimates were determined to establish the level of activity for Engineering Analysis under a proposed new Federal-Provincial Minerals Agreement. It was recommended that about $2.1 million be spent during the new five years to examine new resource potential and to improve existing operations in conjunction with CANMET, a division of Energy, Mines and Resources Canada. To do provincially sponsored parts of the projects, some new temporary employees will be required.

Existing Mining Properties

The monitoring of existing mining properties is a major task of the section. All companies were visited at least once during 1983; the lack of manpower prevented more frequent visits. From the visits, more knowledge of the operations was gained to help ensure that the province's resources are being mined in a prudent manner.

OTHER PROJECTS

- Reviews of operational plans submitted by quarry operators prior to the issuance of quarry permits.
- A preliminary assessment was completed of the salt deposit near Fischells Brook.
- Mining plans for the Colliers Point barite operation were examined.
- Review of legislation pertaining to mining operations.

MINES BRANCH

MINERAL LANDS AND MINES DIVISION

MINERAL POLICY AND PROJECT ANALYSIS SECTION

INTRODUCTION

This Section plans and supervises the collection and compilation of comprehensive statistical data on all aspects of the mineral industry. It plans, directs and conducts a continuous program of data analysis with respect to industry growth patterns, capital requirements, employment, infrastructural requirements, etc. to determine the effectiveness of government policies and to predict requirements for government servicing. It attempts to identify areas for greater provincial benefit from the mineral industry, and conducts specialized studies as required.

STATISTICS

At present, there are three sets of survey forms being dealt with by the Section. They are:

a. Annual Survey of Mining Operations for 1982.
b. Annual Survey of Sand and Gravel Operators for 1982.
c. Annual Survey of Mills for 1982.

Survey forms were mailed in January, 1983, and replies were received throughout the year. Following receipt of the returned census forms, they were edited for thoroughness and accuracy. In the event of inadequacy, the company or individual was contacted to clarify the information supplied or to provide additional information. All the statistics were compiled and computer coded.

The Section participated in the annual federal-provincial committee meeting on mineral statistics which was held in Ottawa in early October.

The Section maintains an economic indices file for commodity prices (e.g. copper, iron ore, zinc), interest rates, foreign currencies, and stock market indicators. These data are used to produce graphs to follow and forecast trends in the mining industry.

ECONOMICS

Updates were prepared on mineral commodities relevant to the provincial mining industry. These cover a wide range of economic issues such as markets, prices, outlook, etc. Work of particular interest was done on barite, rare earths and related minerals, asbestos, fluorspar, dimension stone, slate, salt, zinc, aluminum and silica.

The economic implications of zinc and aluminum smelters were also assessed and short reports were produced on both.

A feasibility and cost-benefit analysis was conducted on a potential salt mine in western Newfoundland. This report concluded that at present the proposition is not viable.

Studies were also undertaken on cement and ferrosilicon (silicon), and reports were completed on both commodities.

Several profiles were prepared about companies interested in new mining opportunities in the province. Present operators were also researched and monitored on a continuous basis. Status reports of all the mines in the province were prepared on a regular basis, usually bimonthly. A weekly report was produced for the Minister on the operations of Baie Verte Mines Inc.

Officers of the Section participated in a mining tax study with the Department of Finance. The terms of reference of the study were broad and the process is still ongoing. Considerable time has been spent producing and modifying a new computer model which will be used by the tax study group as well as for other purposes.

Mining proposals presented to government were analyzed using a computer model.

Due to government's commitments to Baie Verte Mines Inc., this Section participated on the federal-provincial monitoring committee and produced several cash-flow and profit-loss statements for the committee.

The Section also participated in, and contributed to the work done by, the Baie Verte Task Force and the Task Force on Mining Communities in Labrador West.

PERSONNEL

Byron Hynes, Manager, Mineral Policy and Project Analysis
Della Stevens, Economist
H. Brian Collins, Economist
Dennis Davis, Economist
Brian Hurley, Economist/Statistician

BUDGET

The total budget for the fiscal year 1983/84 was $179,000.

Newfoundland and Labrador

Value of Mineral Production
(in thousands)

Metals	1975	1980	1981	1982	(Prel.) 1983
Cadmium	37	218	78	30	- -
Copper	10,541	12,667	11,404	7,280	384
Gold	2,128	5,381	3,707	2,108	162
Iron Ore	486,600	895,558	886,843	572,386	601,078
Lead	2,331	4,729	2,699	855	898
Silver	2,005	7,185	2,899	928	846
Zinc	26,619	42,801	47,797	30,144	42,146
Total	$512,262	$ 968,539	$ 955,427	$613,731	$645,514
Nonmetallics					
Asbestos	18,139	45,151	51,592	9,620	16,845
Barite	-	- -	- -	- -	250
Fluorspar	-	- -	- -	- -	- -
Gypsum	2,315	4,312	3,824	3,284	3,000
Quartz	160	636	768	1,213	1,308
Pyrophyllite	391	1,040	1,003	603	825
Total	$ 21,005	$ 51,139	$ 57,187	$ 14,720	$ 22,228
Structural Materials					
Clay Products	536	806	921	860	1,385
Cement	4,678	6,415	5,580	6,321	10,575
Sand & Gravel	9,588	6,066	9,074	9,317	9,320
Stone	2,889	2,688	2,074	1,763	1,300
Total	$ 17,691	$ 15,975	$ 17,649	$ 18,261	$ 22,580
Grand Total	$550,958	$1,035,653	$1,030,263	$646,712	$690,322
Employment	7,176	5,856	5,567	4,153	3,241

Source: Annual Census of Mines, Quarries and Sandpits

Newfoundland and Labrador

Mineral Production (quantities)

Metals	1975	1980	1981	1982	(Prel.) 1983
Cadmium (kg)	4,923	30,000	16,000	10,000	- -
Copper (kg)	7,500,264	4,879,000	5,154,000	3,731,000	184,000
Gold (grams)	404,096	234,000	209,000	141,000	10,000
Iron Ore (tonnes)	22,585,446	24,620,000	25,686,000	15,806,000	18,123,000
Lead (kg)	5,218,631	4,347,000	2,749,000	1,180,000	1,521,000
Silver (grams)	13,841,172	9,000,000	7,000,000	3,000,000	2,000,000
Zinc (kg)	32,198,011	44,073,000	39,971,000	28,139,000	36,649,000
Nonmetallics					
Asbestos (tonnes)	57,867	72,000	70,000	13,000	32,000
Barite	- -	- -	- -	- -	- -
Fluorspar	- -	- -	- -	- -	- -
Gypsum (tonnes)	582,857	635,000	512,000	409,000	500,000
Quartz	- -	- -	- -	- -	- -
Pyrophyllite	- -	- -	- -	- -	- -
Structural Materials					
Clay Products	- -	- -	- -	- -	- -
Cement	- -	- -	- -	- -	- -
Sand & Gravel (tonnes)	6,236,797	3,279,000	2,818,000	2,839,000	2,900,000
Stone (tonnes)	876,642	948,000	519,000	357,000	280,000

Source: Annual Census of Mines, Quarries and Sandpits

MINES BRANCH

MINERAL DEVELOPMENT DIVISION

INTRODUCTION

The Mineral Development Division is responsible for obtaining and disseminating information on the geology and mineral resources of Newfoundland. The Division functions as a geological survey with two major objectives:

1. to promote exploration and development of the Province's mineral resources by providing basic geoscientific data indicating areas where mineral deposits may be found

2. to provide the geoscientific data base necessary for proper management of the Province's mineral resources

In fulfilling its role, the Division carries out field and office programs in a number of disciplines related to mineral resource development. These include geological, geophysical and geochemical surveys, evaluation of mineral deposits and resource development potential, and development and maintenance of mineral resource information systems for government, the mineral exploration industry and the general public.

ORGANIZATION AND STAFF

The Mineral Development Division is composed of the Director's office and eight sections: Regional Mapping - Newfoundland, Regional Mapping - Labrador, Geochemistry, Mineral Deposits, Quaternary Geology, Publications and Information, Cartography and Administration (Figure 1).

The Director is responsible for general administration of the Division, including budgeting, organization, program planning, and coordination of activities.

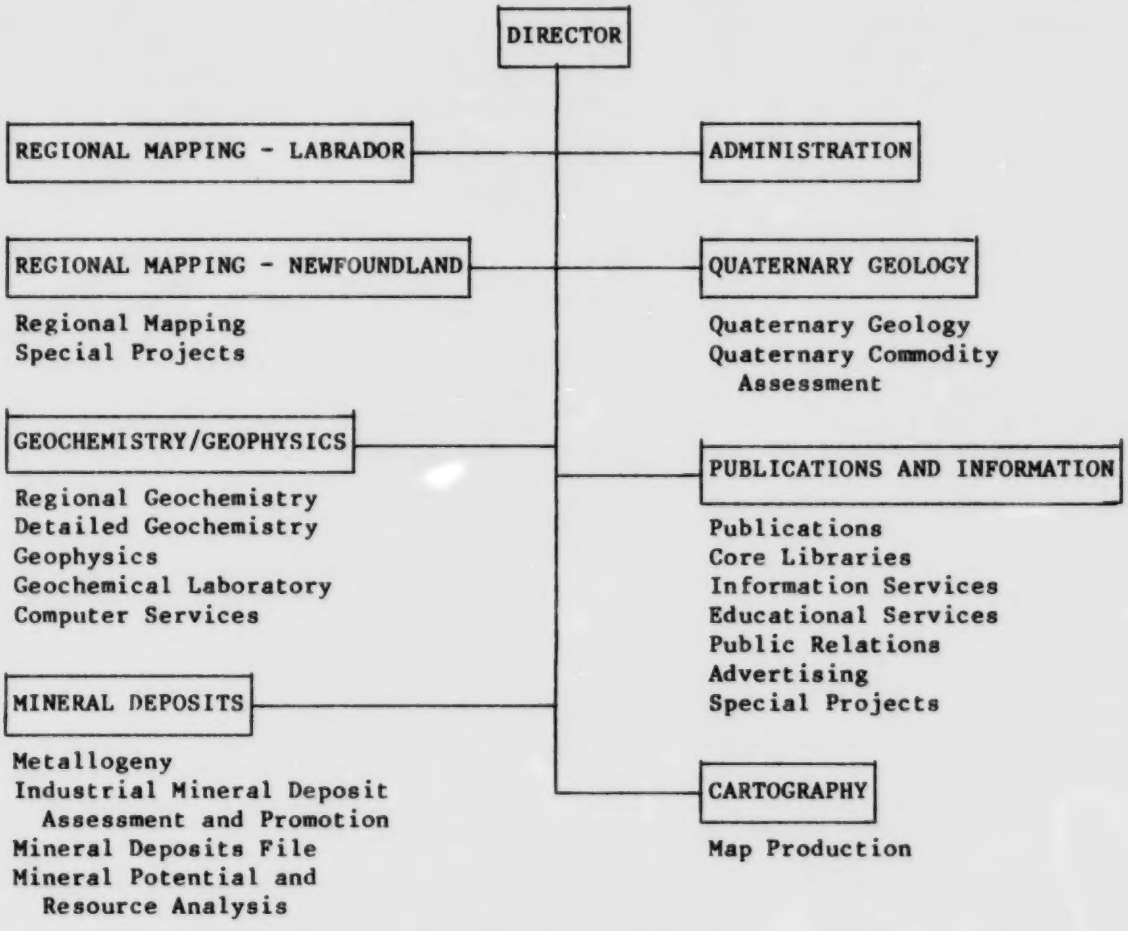
The Regional Mapping Sections carry out a program of geological mapping and related studies, aimed at the provision of reliable, comprehensive geological maps and reports for all areas of the Province, with data accumulated in sufficient detail to allow competitive mineral exploration to proceed. In general, mapping is carried out for publication at the 1:50,000 scale in Newfoundland and at the 1:100,000 scale for Labrador. Maps at these scales are now available for approximately 40% of Newfoundland and 30% of Labrador.

The Geochemistry Section carries out regional and detailed geochemical field surveys. Regional surveys to date have concentrated on reconnaissance lake sediment geochemistry, in order to provide a rapid guide to mineral potential over large areas. All of Newfoundland and about half of Labrador have now been surveyed in this reconnaissance manner. Detailed surveys are carried out in areas indicated by the regional data. The Geochemistry Section is also responsible for the computer unit, which coordinates computerization of data from all sections of the division, and for the geochemical laboratory, which performs the assays and analyses required in support of field programs.

The Mineral Deposits Section is responsible for metallogenic and mineral deposit studies, for assessment of industrial mineral deposits,

Figure 1

MINERAL DEVELOPMENT DIVISION
ORGANIZATION AND RESPONSIBILITIES



and for maintenance of the mineral deposits file. Metallogenic and mineral deposit studies are undertaken to increase our knowledge of the geological environments in which mineral deposits occur, and thus provide guidelines which the mineral exploration industry can use to increase the effectiveness of the search for new deposits. The emphasis is slightly different in the industrial mineral area, where private industry is reluctant to spend exploration dollars; in this area, the section strives to identify deposits with immediate potential for development, and to promote these opportunities to the business community. We had some success in this effort with building stone, slate and barite in 1983. The section also maintains a mineral deposits file, which consists of manual and computerized files with relevant data on all mineral occurrences in the Province, as well as a series of mineral occurrence maps for the Province.

The Environmental Geology Section is responsible for all research related to the Quaternary (surficial) deposits of the Province. The section carries out a surficial mapping program to delineate the distribution of surficial materials and to determine the effects of the various glacial flow regimes on the interpretation of data from exploration programs. The section is also involved in a program to map and evaluate the mineral aggregate resources of the Province, particularly along transportation routes, in municipal areas, and in areas of proposed major developments.

The Publications and Information Section maintains geological files and drill core libraries and makes published and unpublished information on the geology and mineral resources of the Province available to the public. The section edits and prepares for publication reports emanating from the Division's field programs.

The Cartographic Section prepares all maps and figures required by the Division.

The Administration Section provides accounting services to the Division, maintains the Division's field equipment stores, and provides logistical and communication support for field parties.

At the end of 1983, the permanent and temporary staff of the Mineral Development Division numbered 60 persons, distributed as indicated in Table I. Of these, 21 of the permanent staff and 10 of the temporary staff are geoscientists. Three project geologists employed by the federal Department of Energy, Mines and Resources carried out research projects from our office in 1983. A total of 70 geoscience students were employed as seasonal assistants on field parties.

FUNDING

Mineral Development Division's budget for the 1983-1984 fiscal year was $2.6 million (net), allocated as outlined in Table II.

The Division's work was supported under two federal-provincial agreements in 1983/84; these agreements provided most of the revenue shown in Table II. The Division participated, with the federal Department of Energy, Mines and Resources, in the Canada-Newfoundland cooperative minerals program. Under this program, the federal agency spent $1.5 million in geoscientific research in Newfoundland, while the Division contributed $300,000 of the budget to the cooperative effort. The cooperative program ended March 31, 1984. The Division also carried out an aggregate resources inventory pro-

Table I

Mineral Development Division Staff, 1983

	Permanent	Temporary	Total
Director's Office	2	0	2
Administration	3	2	5
Labrador Mapping	4	1	5
Newfoundland Mapping	4	1	5
Geochemistry	10	4	14
Mineral Deposits	4	2	6
Environmental Geology	2	5	7
Publications and Information	7	6	13
Cartography	3	0	3
	39	21	60

Table II

Mineral Development Division Budget, 1983-1984

	Gross Expenditure	Revenue	Net Expenditure
Administration (includes Director's office and Aircraft Support)	$ 415,100	$ 25,900	$ 389,200
Regional Mapping	610,000	87,000	523,000
Geochemistry	600,000	-	600,000
Mineral Deposits	400,000	78,000	322,000
Environmental Geology	395,000	87,000	308,000
Publications and Information (includes Cartography)	508,000	33,000	475,000
Totals	$2,928,100	$310,900	$2,617,200

LABRADOR

1 Nain-Churchill Province cross-section; Riviere Baudancourt - Nachvak Lake **R.J. Wardle**

2 The Archean-Proterozoic boundary in the Saglek area, northern Labrador **A.B. Ryan, Y. Martineau, J. Korstgaard and D. Lee**

3 Geological mapping in the Ramah Group and adjacent gneisses south of Saglek Fiord, northern Labrador **F.C. Mengel**

4 Geology of the Atikonak Lake area, Grenville Province, western Labrador **G.A.G. Nunn, N. Noel and N.G. Culshaw**

5 Geology of the Lac Ghyvelde - Lac Long area, Labrador and Quebec **A. Thomas, N. Culshaw, G. Mannard and J.G. Whelan**

6 Geology of the North West River area **R.J. Wardle and C. Ash**

7 Geology of the Double Mer White Hills and surrounding region, Grenville Province, eastern Labrador **Charles F. Gower**

8 The mineral potential of paragneiss in the Grenville Province in eastern Labrador **Charles F. Gower and Philippe Erdmer**

9 Coastal Labrador aggregate resource project **M.J. Ricketts and D.J. Bragg**

10 Drift prospecting in eastern Labrador **R.A. Klassen**

STRANGE LAKE DEPOSIT

11 Geochemical orientation studies and Quaternary mapping around the Strange Lake deposit, northern Labrador **J.W. McConnell, D.G. Vanderveer, M.J. Batterson and P.H. Davenport**

WESTERN NEWFOUNDLAND

12 Geological mapping in the northern Long Range Mountains, western Newfoundland **Philippe Erdmer**

13 Geological mapping of the Port Saunders (12I/11) and the St. John Island (12I/14) and parts of the Torrent River (12I/10) and Bellburns (12I/6) map sheets, northwestern Newfoundland **Ian Knight and Douglas Boyce**

14 Dolomites and dolomitization of the St. George Group (Lower Ordovician) of western Newfoundland **Douglas Haywick and Noel P. James**

15 Detailed study of carbonate breccias, Newfoundland zinc mines, Daniel's Harbour, Newfoundland **Thomas E. Lane**

CENTRAL NEWFOUNDLAND

16 Geology and mineral deposits of the Lushs Bight Group, Notre Dame Bay, Newfoundland **B.F. Kean**

17 Geologic setting and volcanogenic sulfide mineralization of the eastern Wild Bight Group, north-central Newfoundland **H. Scott Swinden**

18 Surficial and glacial mapping of the east half of the Great Gull Pond map area (12H/1), Newfoundland **B.G. Sparkes**

19 Estimation of physical parameters of MacLean Channel, sulfide-bearing debris flows, Buchans, Newfoundland **W.P. Binney**

20 Geochemistry of granitoid clasts from MacLean Extension orebody, Buchans, Newfoundland, and implications on their possible source **Peter Stewart**

21 Rare earth elements in volcanic rocks of the Buchans area, Newfoundland **D.F. Strong**

22 Geophysical measurements at Buchans **P.G. Killeen, A.V. Dyck, C.J. Mwenifumbo and A.K. Sinha**

23 Mineralogy of the Tulks massive sulfide deposit, Buchans area, Newfoundland **J.L. Jambor**

24 Geology of the Skidder Prospect, Buchans, Newfoundland **Wayne Pickett and David H. Barbour**

SOUTH COAST OF NEWFOUNDLAND

25 Geology of the west half of the Dolland Brook map area (11P/15), southern Newfoundland **Frank Blackwood**

26 Geology of the Cold Spring Pond map area (west part) 12A/1, Newfoundland **S.P. Colman-Sadd**

27 Geology of the White Bear River map area (11P/14), southern Newfoundland **S.J. O'Brien and S. Tomlin**

28 Geology of the Wolf Mountain (east half) and Dolland Brook (east half) map areas, south-central Newfoundland **W.L. Dickson and P.W. Delaney**

29 Geochemical surveys over three tungsten anomalies in the North Bay Batholith, southern Newfoundland **John McConnell**

30 Metallogenic studies of the Ackley Granite and the Cross Hills plutonic complex, Fortune Bay area, Newfoundland **J. Tuach**

31 Ackley batholith gravity survey **H.G. Miller**

32 Computer-aided analysis of lithogeochemical data from Newfoundland granites and its role in mineral exploration **P.H. Davenport, J. Tuach and W.L. Dickson**

EASTERN NEWFOUNDLAND

33 Barite evaluation in three areas of southeastern Newfoundland **A.P. Howse and C.J. Collins**

34 Geochemical follow-up studies in eastern Newfoundland **A.J. Butler and P.H. Davenport**

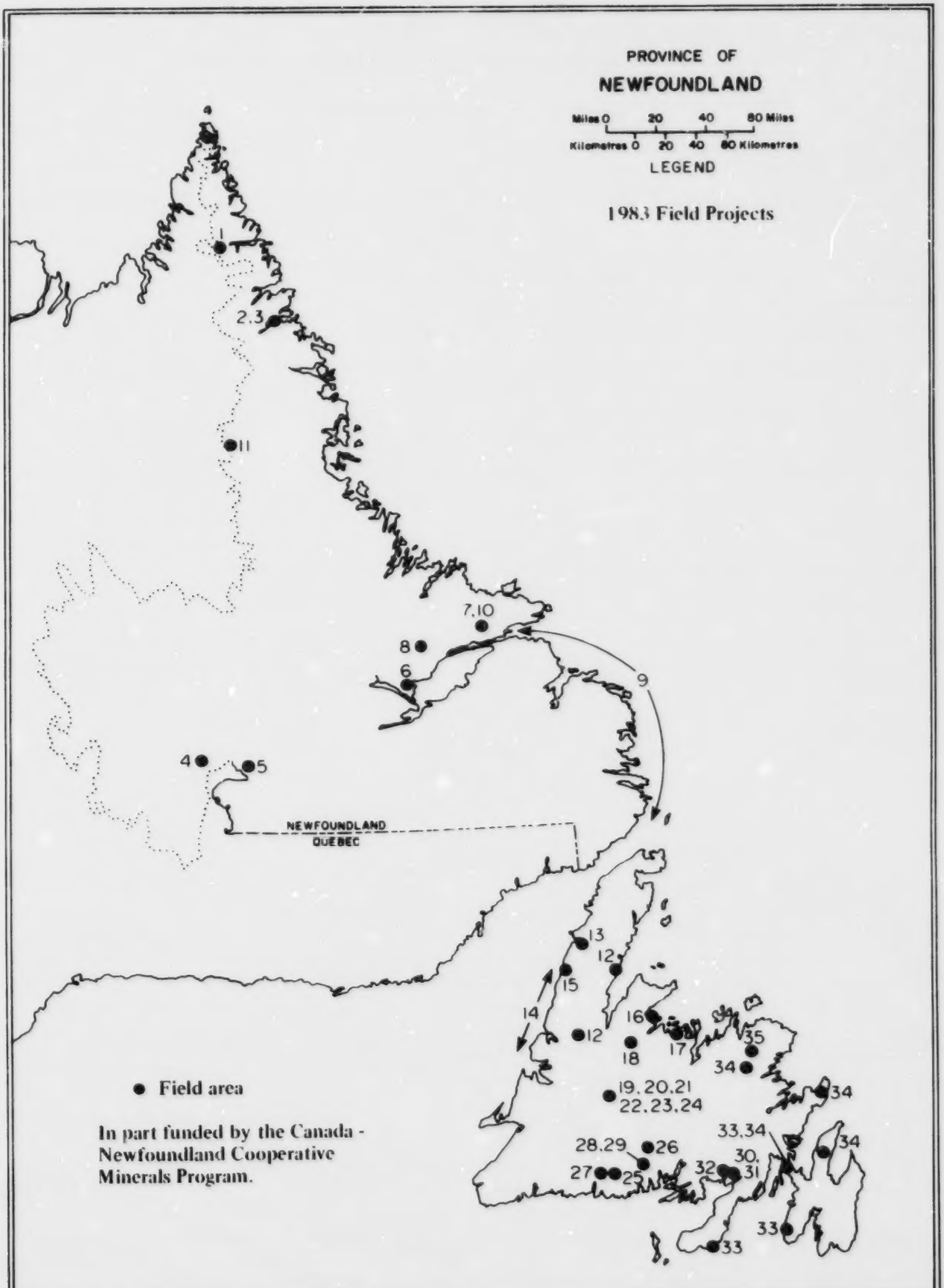
35 Geoscience studies in the Weir's Pond area northeast of Gander, Newfoundland **A.J. Butler, H.G. Miller and D.G. Vanderveer**

- Mineral potential of clastic sedimentary basins in Newfoundland **P.L. Dean and J.R. Meyer**

- Detailed aggregate assessment project, insular Newfoundland **P.T. Kirby**

- Drill Core Collection **A. Harris and S. Cochrane**

Numbers correlate with those on the accompanying map


PROVINCE OF
NEWFOUNDLAND
Miles 0 20 40 80 Miles
Kilometres 0 20 40 80 Kilometres
LEGEND
1983 Field Projects
NEWFOUNDLAND
QUEBEC
● Field area
In part funded by the Canada - Newfoundland Cooperative Minerals Program.

ject under the Coastal Labrador Agreement, cost-sharing this project on a 50% federal-50% provincial basis with the federal Department of Regional Economic Expansion.

Negotiations were started in 1983 toward a new five-year mineral development agreement with the federal Department of Energy, Mines and Resources. It is expected the new Mineral Agreement will be signed in the Spring of 1984.

MINES BRANCH

MINERAL DEVELOPMENT DIVISION

QUATERNARY GEOLOGY SECTION

INTRODUCTION

The Quaternary Geology Section (formerly called the Environmental Geology Section) consists of a senior geologist (D.G. Vanderveer); one permanent project geologist (F.T. Kirby); 3 temporary project geologists (B.G. Sparkes, M.G. Ricketts, and M.J. Batterson); one temporary geologist (D.J. Bragg), one temporary computer programmer analyst (J.B. Atkinson) on loan from the computer unit, and a laboratory assistant (S.C. Blackwood). The section has considerable interaction with other government departments through the provision of mapped and raw data used in agriculture , forestry, mapping programs and during road construction (Transportation and Forestry). The section is also a primary contact for municipal planners and consultants involved in collecting resource, or geotechnical, data for use in road construction, water and sewer projects, municipal developments or other major developments (e.g. construction of offshore supply and service bases or concrete platforms). The mineral exploration industry has increasingly found the Quaternary mapping data useful in tracing mineralized float back to a source in bedrock (e.g. Noranda's Tally Pond discovery).

The statistics on data distribution directly from the section (excluding information supplied to users by the Publications and Information Section) during 1983, were 377 maps of aggregate data, 50 aggregate resource reports (including 29 colored 1:250,000 scale maps in each report), 46 Quaternary maps, 276 copies of form data (raw field data) plus 437 copies of particle size analyses and a number of geology maps. A summary of users indicated that 17 were government (federal, provincial, municipal); 24 were consulting firms (planning and geotechnical requests related to construction), 5 were university users, 3 were contractors and 4 had unidentified affiliations.

BUDGET

The total budget for the section was around $350,000, of which $100,000 was cost-shared 50/50 under the Coastal Labrador Subsidiary Agreement. Of the total, $202,000 was devoted to aggregate assessments, $100,000 to Quaternary mapping, and the remainder to project supervision and laboratory support.

PROJECT SUMMARIES

Central Volcanic Belt Quaternary Mapping (1983)

Project Leader: B.G.Sparkes

Mapping was conducted in the Great Gull Pond map area as a continuation of the Surficial and Glacial Mapping Program in central Newfoundland. The purpose of the program is to provide information on the nature and distribution of surficial landforms and the glacial dispersal of rock materials as an aid to mineral exploration. The origin of mineralized boulders discovered to the west of the former Gullbridge Mine is also being investigated. Information was obtained from 300 sites and 500 till samples were collected for geochemical and particle

PERSONNEL CHART

SENIOR GEOLOGIST - D.G. Vanderveer

QUATERNARY MAPPING

1. Central Volcanic Belt
   B.G. Sparkes1
2. Weirs Pond Area
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   M.J. Batterson
3. Strange Lake Area
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   M.J. Batterson
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5. Detailed Assessments - Nfld.
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6. Regional Assessments - Lab.
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10. Land Use Planning
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    S.C. Blackwood4

1. Project Geologist
2. Geologist
3. Computer Programmer Analyst
4. Laboratory Assistant

size analyses. A representative pebble fraction was obtained at most sites to determine the lithologic composition of the tills in order to relate dispersal to bedrock sources. The field staff consisted of a project geologist, a senior assistant and a laborer. The total budget for the project was $59,000.

Weirs Pond Area Quaternary Mapping
(1983)
Project Leader: D.G. Vanderveer

Geochemical anomalies had suggested mineralization related either to unknown bedrock sources, presumably buried beneath glacial drift, or to materials contained in glacial materials derived and transported from areas of known mineralization west of the study area. This project was aimed at defining the distribution of glacial materials and the dispersal from bedrock sources. This will be accomplished by glacial till geochemistry and lithology studies of glacial materials collected from 250 sites and including 200 samples of B soil, B-C transition soils and parent soil horizons. Glacial striae were observed at 55 localities, and two glacial flow regimes were recorded, an early flow to the east and a later flow radially into Gander Bay and Indian Bay. The field staff consisted of the project leader and various assistants borrowed for short terms from other projects. The budget for the project was approximately $25,000.

Strange Lake Area - Quaternary Mapping (1983)
Project Leader: D.G. Vanderveer
Assistant: M.J. Batterson

The Iron Ore Company of Canada located a deposit of niobium, tantalum, yttrium, beryllium and rare earths in northern Labrador while following up a federal-provincial regional geochemical survey in 1979.

Quaternary mapping of the area in 1983 was aimed at determining the regional setting of the deposit in an area of extensive overburden. Till geochemistry, till lithology studies, and surficial mapping techniques were used to determine the distribution of glacial overburden and to define dispersal fans from bedrock sources.

In addition, reconnaissance flights were made along potential routes to the Labrador coast to determine the feasibility of establishing a road from the deposit to the coast. Total cost of the 1983 phase of the project was about $25,000. This included two weeks of helicopter-supported field work, during which 200 samples were collected from 150 sites.

Peatland Inventory
Co-ordinator: D.G. Vanderveer

An inventory of peatlands has been underway in Newfoundland since 1977. By 1983, approximately two-thirds of insular Newfoundland had been inventoried at a reconnaissance level by Northland Associates under contract to the Nfld. Department of Forest Resources and Lands. Approximately 1000 maps at 1:12,500 scale, five reports and five sets of inventory tables have been generated.

In September, 1983, responsibility for the project was transferred to the Newfoundland Department of Mines and Energy. All the maps and data were microfiched preparatory to producing an open file release. Northland Associates were awarded a $30,000 contract late in 1983 to complete the inventory for the southwestern area of insular Newfoundland and to make alterations to the format of data compiled in the first two years of the project. The data will, therefore, be compatible and suitable for computer entry, storage and retrieval. This project was funded by the Energy Branch partly from funds under the Conservation and Renewable Energy Demonstration Agreement.

Detailed Aggregate Resources Project - Insular Newfoundland
Project Leader: F.T. Kirby

The Detailed Aggregate Resources Project - Insular Newfoundland is a provincially funded project with a budget for 1983-84 of $63,000. The main aim of this project is to provide detailed information on the aggregate resources within municipal or other planning areas, make the local authorities aware of aggregate resources within their jurisdictions and help plan their optimum use.

The availability of aggregate resources is an essential component for the future expansion of any community or large scale development. Planning for the best use of this valuable nonrenewable resource, therefore, is of prime importance to government and other planning agencies.

In Newfoundland, high quality aggregate resources are in short supply in most areas. Areas included in the 1983 study were St. John's, Gander, Marystown, and St. Anthony. Approximately 450 samples were collected from nine municipal areas. The aggregate data are being proposed for inclusion in the municipal planning process and as part of the planning for major industrial developments (e.g. offshore supply or construction bases). The data

generated have also been used considerably by consulting and contracting firms preparing tenders for various projects and by developers who wished to determine the availability of construction materials in developing realistic cost estimates.

Regional Aggregate Assessments - Labrador

Project Leader: M.G. Ricketts
Geologist: D.J. Bragg

The Coastal Labrador Aggregate Resource Program is a 50/50 cost-shared program between the Newfoundland Department of Mines and Energy and the Federal Department of Regional Economic Expansion (Coastal Labrador Subsidiary Agreement) with a budget of $107,000 in 1983-84.

The objective was to identify areas of sand and gravel to meet the long-term aggregate needs of the coastal Labrador community councils for municipal servicing, road upgrading, housing construction, etc. Geotechnical properties of the subsoil, overburden and bedrock materials were determined to assist in route selection for roads, and for water or sewage mains. Surface landforms were also studied to determine terrain suitable for such other community needs as housing and recreation. Field work involved sampling the various types of overburden with particular emphasis on materials suitable for construction purposes. Future proposed work includes mapping in communities north of Rigolet; however, in 1984 work will concentrate on a study of potential road corridors between the I.O.C.C. Strange Lake discovery and coastal Labrador.

Aggregate Resources Regional Survey - Newfoundland and Labrdor.

Project Leader: M.J. Batterson;
Computer Programmer Analyst: J. Atkinson

In 1983, this project expanded on the base established during previous years. There were four main areas of investigation.

Aggregate data from within a 6 km corridor along known and proposed transportation routes within the province are now available on maps at the 1:50,000 scale. Colored aggregate maps at the 1:250,000 scale and an accompanying report have been compiled and released (Report 83-2). Data include aggregate identification, pit and quarry locations and sample locations.

Surficial landform information has been extended to correspond to those areas covered by the aggregate data. Aerial photograph interpretation has been completed and drafting of maps is ongoing. Copies of these maps are available at a 1:50,000 scale.

Compilation of lithological information on the assessed areas is nearing completion. Twenty-nine 1:250,000 scale maps plus marginal notes will outline bedrock data from a geotechnical viewpoint, in order to supplement and enhance the aggregate and surficial data.

The expansion of the computerized aggregate resource database, the SIR (Scientific Information Retrieval) system, has been a continuous part of the project. To date, 30,000 pieces of data have been col-

lected from over 10,000 sites across the province. These data are now available upon request in a variety of formats, including grain-size distribution curves, lithological data and petrographic numbers, as well as detailed site and sample information.

The project achieved its aims for 1983 and expansion of the database is expected to continue over the coming years. The project was operated on a budget of $36,920 by a staff of two people.

Interdepartmental Liaison - Primary Contact - D. G. Vanderveer

Primarily as a result of the aggregate assessments, the Quarternary Geology Section has become involved with many other government departments (e.g. Agriculture, Environment, Forest Resources and Lands, Municipal Affairs, Transportation, etc.), mainly with regard to Land Use Planning, Environmental Impact Assessments, and Slope Stability Assessments.

Environmental Assessments Committee

The senior geologist of the Environmental Geology Section is the department's main contact for referral of projects registered under the Environmental Assessment Process. Proposals are reviewed by various senior staff to determine the need for environmental assessment from a Mines and Energy perspective (e.g. effects on mineral development or potential, management of aggregate resources, or from an environmental perspective such as slope stability, erosion control, etc.).

During 1983, the section represented the department on twelve Environmental Assessment Committees in addition to the processing of numerous other referrals that eventually were exempted from the process.

Slope Stability Studies

Because of its expertise in overburden materials and bedrock weathering, the section has often been called upon to provide assistance to other government departments (e.g. Emergency Measures, Department of Justice) when assessing slope stability hazards. During 1983, inspections were conducted in a number of problem areas, most notably Harbour Breton, Bishops Falls and the Berry Head municipal area.

The Harbour Breton inspection covered areas of bedrock instability and resulted in the relocation of several families to areas removed from the danger of falling rock.

Erosion along the Exploits River at Bishop Falls as a result of the destruction of part of the former Abitibi-Price dam and powerhouse was monitored and people and homes were evacuated from areas of danger. Supervision of a geotechnical firm hired to conduct soil testing of the hazardous areas was carried out by the senior geologist, who also represented the department on the disaster committee established to oversee the project and the rehabilitation of the new river bank.

At Berry Head, a review of a proposed municipal plan indicated proposals for housing developments in areas suspected of being underlain by clay and silt materials and, therefore, subject to slope instability either through landslides or extensive erosion. Field investigations indicated some serious problem areas. Recommendations were made to prevent housing or related developments in these suspect areas. This information will soon be presented to the Town Council so that the appropriate amendments may be made to the municipal plan.

Land Use Planning - Contact D.G. Vanderveer

The section is a primary contact for the identification of land use conflicts between areas of mineral (including mineral aggregates) potential and other proposed land uses in an effort to ensure that areas of potential are not needlessly alienated from future development. The Section is working with people from Crown Lands, Forestry, Agriculture and Municipal Affairs to establish zones of aggregate potential that should be maintained free of other conflicts and to ensure that other land use developments do not prevent access to aggregate materials needed to meet the present and future domestic and industrial needs.

The Department of Transportation has used Quaternary and aggregate resource data either directly or indirectly to assist in route selection or selection of materials for road construction. The most recent example is the Labrador City/Wabush to Ross Bay Junction portion of the Trans-Labrador Highway. The consultant hired was able to use data generated by the section to select the best route for the road and to recommend sources of construction material. Without these data, delays would have been necessary to allow field investigations to select an appropriate route or to locate sources of aggregate materials.

With reference to referrals, the Section reviewed and provided input on approximately 20 municipal plans in 1983, reviewed 50 or more silviculture proposals from the Department of Forestry, reviewed and commented on about 15 to 20 Crown Lands referrals per week, and several agriculture proposals.

MINES BRANCH

MINERAL DEVELOPMENT DIVISION

MINERAL DEPOSITS SECTION

INTRODUCTION

The Mineral Deposits Section was created in December, 1980 to replace the former Mineral Evaluation Section, which was responsible for industrial minerals assessment, mineral deposits file, core storage, Crown properties evaluation, exploration monitoring and monitoring of mining operations. After the creation of the Mineral Deposits Section, some of these former projects were reassigned to other Sections of the Department, were abandoned or reduced to less active programs. The core storage program was assigned to the Publications and Information Section; the prime responsibilities for monitoring exploration and mining were assigned to the Mineral Lands and Mines Division; and the Crown properties evaluation program was considerably reduced. The Mineral Deposits Section retained responsibility for the mineral deposits file and industrial minerals and assumed a new role in the field of metallogenic/ mineral deposit studies.

The Section is also largely responsible for the Division's input into management decisions regardng mineral policy, mineral legislation, land use planning, promotion of mineral resources, and programs and priorities of the department. The section provides expertise on mineral deposits to other sections of the department and coordinates programs in common areas.

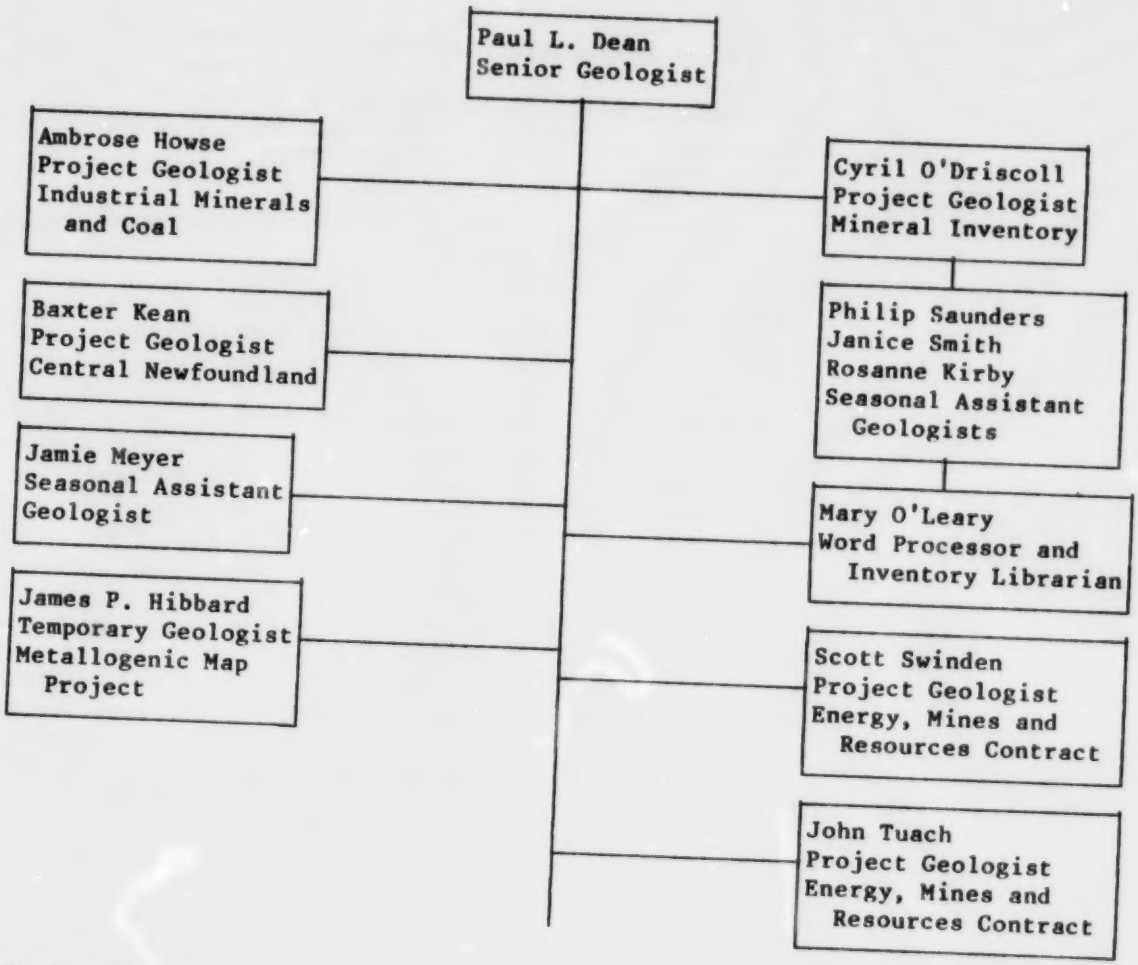
INDUSTRIAL MINERALS

The Mineral Development Division has a long tradition of industrial minerals assessment and promotion in Newfoundland and Labrador. Studies of the gypsum and limestone resources of western Newfoundland in the 1950's resulted in the gypsum mining operation at Flat Bay and the North Star cement plant at Corner Brook. The silica deposits at Ville Marie, which are mined for use in the manufacture of phosphorous at Long Harbour, were first evaluated by the Mineral Development Division in 1967. More recently, there have been general studies on limestone, silica, barite, labradorite, granite, slate and fluorspar, all of which have been successful in identifying immediate and longer term mineral development opportunities. In 1983, a report on the fluorspar deposits of the St. Lawrence area was instrumental in attracting the new developers, Minworth Limited, who plan to reactive the fluorspar industry at St. Lawrence.

A major study on the barite resources of the province is nearing completion. This project, which began in 1982, has been successful in discovering new barite prospects on the Avalon and Burin Peninsulas as well as new lead prospects on the Avalon and Port au Port Peninsulas. An open file release on barium geochemistry in stream sediments in the western Avalon Peninsula is planned to mid-1984 and a summary report on barite in the province is planned for early 1985.

COAL

Field work began in 1981 to evaluate the coal potential of the Robinsons and Howley areas of western



Newfoundland. Coal was mined on a small scale in both these areas in the early part of this century but operations ceased because of the complex structural nature of the coal beds. The new program was designed to use modern geoscience and technology to properly evaluate the coal potential in both areas.

In 1982, the Department of Mines and Energy and the Department of Earth Sciences at Memorial University were awarded a Natural Sciences and Engineering Research Council of Canada grant of $395,000 to study the geology and mineral potential of the Bay St. George area. Geological and geophysical studies were carried out in 1983 and one preliminary hole was drilled to a depth of 330 metres. While the main purpose of the hole was largely scientific and very little coal was intersected, there was an intersection of oil shale, the first in the Bay St. George area. Additional work is planned for 1984.

MINERAL INVENTORY FILE

The Mineral Occurrence Data System (MODS) is designed to offer an efficient information service on all mineral occurrences in Newfoundland and Labrador. It is a two-part project comprising a mineral inventory file and a computerized mineral index.

The mineral inventory file consists of mineral occurrence descriptions which summarize all the available information on known mineral occurrences in the province. A description may be prepared for any type of occurrence from an indication to a producing mine. It contains information under the following headings: name, product, owner/operator, land tenure, location and access, description, history of exploration and development, production and/or reserves, status, type of deposit, mineralogical composition, nature of mineralization and genesis, host rocks, structure of deposit, structural features and tectonic setting, metal/mineral content, geophysical expression, geochemical expression, physiographic setting, remarks and references.

Information on all mineral occurrences for the island of Newfoundand has been compiled. Areas 1L, 1M, and 11O are now being input and will be available within the next few months. Areas which have been completed in Labrador are: 13I, 13J, 13K, 13N, 13O, 14C, 23I, 23J and 23O. These map areas are located in the Central Mineral Belt and the Labrador Trough.

At present, the file consists of approximately 3,000 mineral occurrence descriptions and each description contains at least 3 pages and in some cases up to 10 pages. The whole file contains approximately 15,000 pages.

The file is presently being microfiched with topographic location maps and as they are completed, copies will be available upon request. Areas which have been microfiched are 2E, 12B, 12H and 14C. It is hoped to have the complete file microfiched by the end of 1984.

1:250,000 mineral occurrence maps with updated geological bases are being prepared for printing. So far, nine maps have been printed and are available upon request at a cost of $3.00 each. These are 2C, 2E, 2F, 2M, 12B, 12P, 13K, 13N and 14C. In addition, a 1:100,000 map of parts of 13J and 13O and a 1:50,000 map of 13K/5 are printed and available. These maps show the locations of all known mineral occurrences and contain a listing of the occurrences, including the name, status and minerals present. Published maps for most of Newfoundland and some parts of Labrador will be available by the end of 1984.

COMPUTERIZED MINERAL INDEX

The computerized mineral index contains information selectively extracted from the mineral inventory file. When complete, it will be possible to make a wide variety of complex retrievals which would be impossible with a manual system. The computerized file is not presently available for reproduction but can be accessed at the Department of Mines and Energy offices in St. John's.

METALLOGENIC STUDIES

Metallogenic studies relate mineral occurrences in specific areas to the regional geology outlined by the mapping projects and focus directly on mineral occurrences and geological units with known mineral potential. These studies develop models for the mineralizing processes and provide specific guidelines for mineral exploration. Metallogenic studies were started in 1979 and have focused on base metal deposits of the Central Newfoundland Volcanic Belt. Projects completed or in progress are (1) the lead-zinc-silver-gold deposits of the Baie D'Espoir and La Poile areas, (2) the copper deposits of the Great Burnt Lake area, (3) the copper deposits of the Green Bay area, (4) the Betts Cove copper deposit, and (5) an assessment of the

potential for clastic-hosted base metal deposits in Newfoundland.

A number of additional projects are being conducted in cooperation with the federal Department of Energy, Mines and Resources and Memorial University. These are (1) the zinc deposits at Daniel's Harbour, (2) the tin-molybdenum-tungsten prospects of Fortune Bay, (3) a regional study of volcanogenic base metal deposits in Central Newfoundland, and (4) two detailed projects on the Buchans base metal deposits.

Most of these projects have been successful in (a) initiation of new exploration projects by the mineral industry or (b) encouraging and supporting ongoing exploration and development programs.

A major new initiative in 1984 will be an expansion of metallogenic/mineral deposits studies in Labrador.

MINES BRANCH

MINERAL DEVELOPMENT DIVISION

GEOCHEMISTRY SECTION

The Geochemistry Section of the Mineral Development Division is under the direction of Peter Davenport, Senior Geochemist. The section has three main functions: (1) the provision by the computer unit of geoscientific data processing support; (2) the operation of a geochemical laboratory; and (3) field geochemical surveys to identify new areas of mineral potential in the province.

The Computer Unit is managed by Harjit Missan and has a staff of two, who provide computer facilities and programming support to the geologists and geochemists of the Mineral Development Division. The unit has online access to Newfoundland and Labrador Computer Services (NLCS) via a cluster of three IBM terminals and a printer. In addition, the unit has a Tektronix 4054 graphics terminal with digitizing table and plotter and a Texas Instruments Professional computer and printer. Both the Tektronix and Texas Instruments systems can be used as independent microcomputers or can be linked to NLCS for data-file transfer.

The main data systems currently in use are the Mineral Occurrence Data System (MODS), the Aggregate Resources Inventory System and the regional geochemical data files for Newfoundland and Labrador. In addition, many geologists and geochemists of the Division have their own projected-related data sets.

The main changes in 1983 have been the acquisition of the Texas Instruments microcomputer and a plotter driven by the Tektronix microcomputer. The Tektronix system has become very popular for data analysis for many of the Division's geoscientists.

The Geochemical Laboratory is directed by Hank Wagenbauer and has a staff of seven full-time and two part-time employees. The laboratory carries out all sample preparation required for geochemical analysis for the Division's geoscientists, and most of the analytical work. In some cases, where analyses require specialized equipment not available "in-house", analytical work is contracted out. The output from the laboratory for 1983 is summarized in Table 1.

Field Geochemical Surveys were carried out in several areas of the province (Figure 1) by James Butler and John McConnell. The principal purpose of these studies is to find the cause of some of the high metal values found in earlier regional surveys in the lake sediments of particular areas. The high metal values in the sediments are termed "geochemical anomalies", and in many cases are caused by mineral concentrations which, if sufficiently rich and large, may be commercially exploitable.

A field crew under the direction of John McConnell worked in several areas in southern Newfoundland in 1983. In these areas, tungsten and tin were the metals of interest and during the summer's work a new showing of the tungsten mineral scheelite was discovered in a granite near Dolland Brook. Other occurrences of tungsten are known in the area at Grey River and Granite Lake.

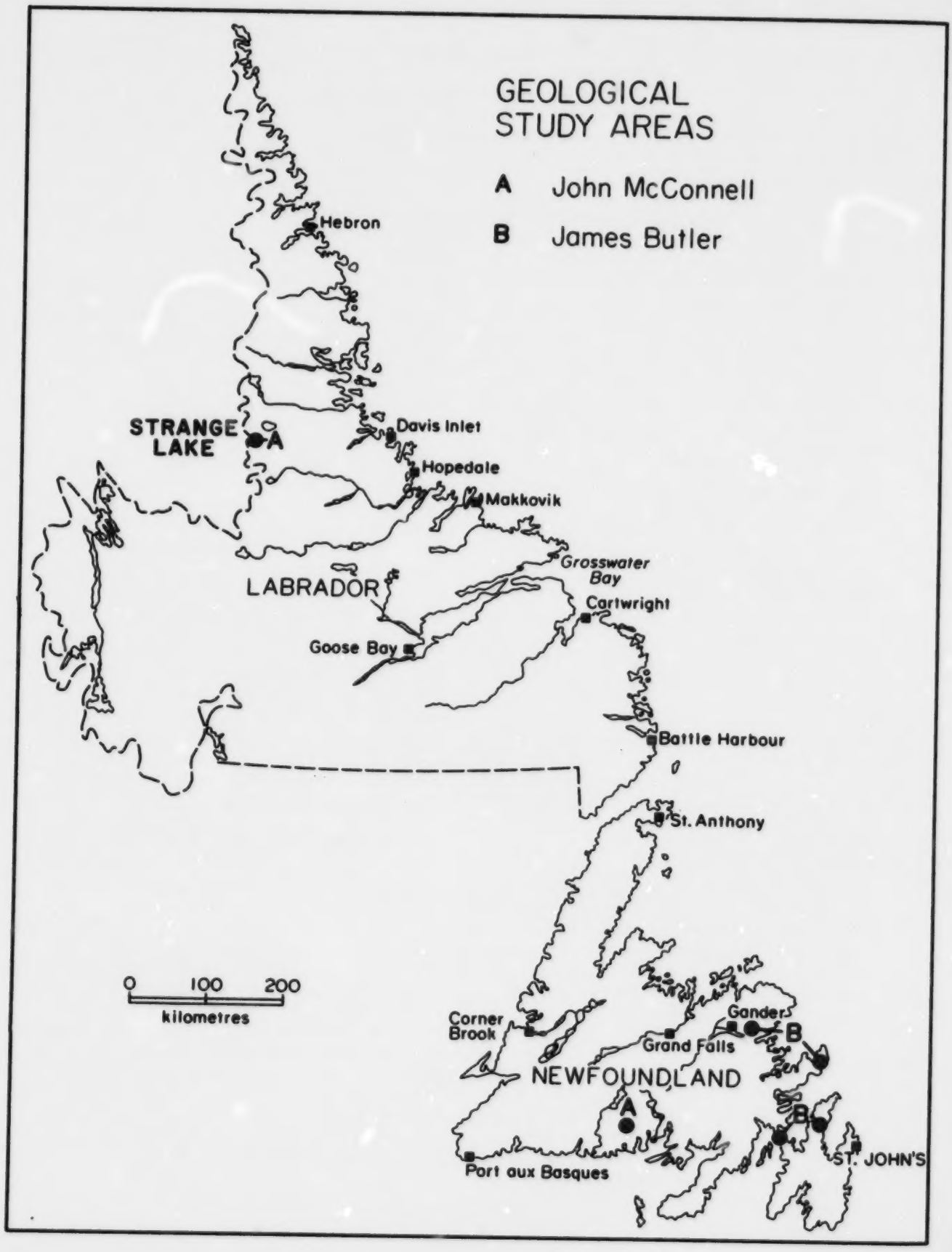

GEOLOGICAL
STUDY AREAS
A John McConnell
B James Butler
Hebron
STRANGE
LAKE
A
Davis Inlet
Hopedale
Makkovik
Grosswater
Bay
LABRADOR
Cartwright
Goose Bay
Battle Harbour
St. Anthony
0 100 200
kilometres
Corner
Brook
Gander
B
Grand Falls
NEWFOUNDLAND
A
B
B
ST. JOHN'S
Port aux Basques

Table 1. Summary of output from the Geochemical Laboratory of the Mineral Development Division for 1983.

Activity	
Sample preparation	**Number of samples**
1) Soil, till and sediment samples	3,556
2) Rock samples	1,628
3) Samples prepared for outside analysis	5,632
	10,816

Sample analysis	**Number of determinations**
1) Major and trace elements in silicate rocks	43,794
2) Assay and miscellaneous analyses	5,131
3) Geochemical analyses of sediment, soil and till	55,496
TOTAL	104,421

In the Carbonear area, James Butler led a field party in collecting stream sediments to complete a detailed search for the source of high lead and zinc values found in lake sediments in 1979. This work continued a study started by the Mineral Deposits Section in 1982, during which showings of lead and copper minerals were found together with widespread iron sulfides. On the isthmus of the Avalon Peninsula, a second stream sediment survey was carried out by Butler's field party in an effort to locate the sources of some lead, zinc and copper anomalies, and also in cooperation with Ambrose Howse of the Mineral Deposits Section, to locate deposits of barite. The area contains the deposit known as the La Manche Mine from which some lead, zinc and silver ore was mined in the last century, as well as a number of barite veins. Surveys were also carried out on the Bonavista Peninsula in an effort to find the source of a lead anomaly, and north of Benton to trace the source of high copper and nickel values in lake sediments. In the Benton area, the geochemical survey was run in conjunction with an investigation of the glacial deposits by Douglas Vanderveer and Martin Batterson of the Environmental Geology Section, and also with a geophysical survey to measure variations in the earth's gravity field in the area carried out by Dr. Hugh Miller of the Department of Earth Sciences at Memorial University.

In Labrador, results from a regional lake sediment geochemical survey released in 1979 led the Iron Ore Company of Canada to explore in an area of northern Labrador 130 km west of Nain, resulting in the discovery of the Strange Lake deposit of yttrium, niobium, beryllium and zirconium. To learn more about the geochemical anomalies associated with this type of deposit, an intensive survey was carried out by John McConnell, Peter Davenport, Douglas Vanderveer and Martin Batterson in 1983. Information from this study will help mineral exploration companies in their search for other deposits of this rather unusual kind in the province.

MINES BRANCH

MINERAL DEVELOPMENT DIVISION

REGIONAL MAPPING - NEWFOUNDLAND

INTRODUCTION

In 1983, the Newfoundland Mapping Section consisted of five full-time project geologists. During the summer months of 1983, it also included twelve temporary personnel.

The primary responsibility of the section is to make geological maps of selected parts of insular Newfoundland, with an ultimate objective of providing full coverage for the whole island. Most of the maps are prepared at a scale of 1:50,000, although in some areas where there are relatively few different types of rocks, a scale of 1:100,000 is sufficient.

Mapping was carried out between late May and mid-September, 1983. The rest of the year was used to do laboratory and microscope work on rock samples, to prepare maps and accompanying reports, and to communicate the results to interested parties, particularly companies interested in mineral exploration.

PERSONNEL AND BUDGETS

The following table lists the full-time project geologists, and shows the geographic locations of their projects, the numbers of temporary personnel hired, the sizes of the budgets, and the sources of funds. All budgets are for the fiscal year 1983-84.

INDIVIDUAL PROJECTS (see map)

Frank Blackwood: Mapping was done in the west half of the Dolland Brook (N.T.S. 11P/15) area, northeast of Grey River. Morris West was hired as a field assistant for the duration of

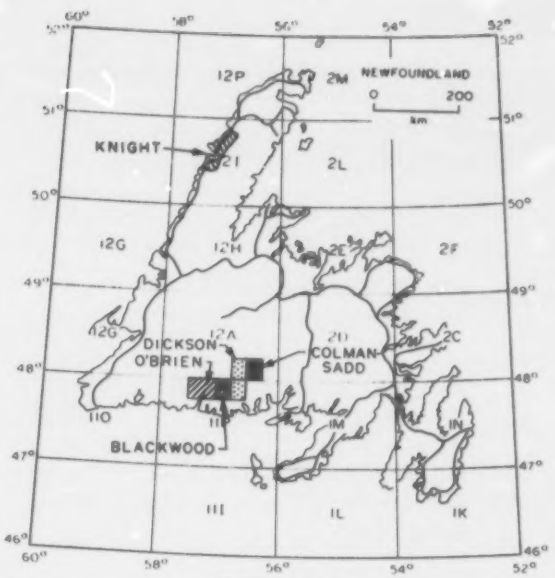
Project Geologist	Location	Temporary Personnel	Budget	Source of Funds
Frank Blackwood	South-Central Newfoundland	1	$ 63,362	Provincial
Stephen Colman-Sadd	South-Central Newfoundland	1	$ 62,862	Provincial
Lawson Dickson	South-Central Newfoundland	3	$110,000	Federal
Sean O'Brien	South-Central Newfoundland	3	$ 96,384	Provincial
Ian Knight	Great Northern Peninsula	4	$ 89,199	Provincial
		Total Budget $421,807		

the field season. The main mineral potential in the area is for tungsten, uranium and base metals, but no new occurrences were located. Office work consisted of preparing a report and map of the Facheux Bay (N.T.S. 11P/9) area, near Bay d'Espoir, where field work was done in 1982.

Stephen Colman-Sadd: Mapping was done in the west half of the Cold Spring Pond (N.T.S. 12A/1) area, near the Upper Salmon hydroelectric station. Anthony Benoit provided field assistance. Some small occurrences of base metals were found and the unit which hosts the Great Burnt Lake copper deposit was traced farther to the southwest. In the office, work was continued on a map and a report of the Burnt Hill (N.T.S. 2D/5) area, south of Grand Falls.

Lawson Dickson: Two half map areas were mapped north of Francois. These were Wolf Mountain (N.T.S. 12A/2 east) and Dolland Brook (N.T.S. 11P/15 east). Assistance in the field was provided by Paul Delaney, Glen Case and Barry Wheaton. One new occurrence of tungsten mineralization was discovered. Laboratory, microscope and computer work was completed on granitic rocks (Ackley Granite) north of Fortune Bay and a 129 page report was published. Similar work continued on rocks northwest of Bay d'Espoir.

Sean O'Brien: Mapping was completed in the White Bear River (N.T.S. 11P/14) area north of Grey River. Field assistants were Steve Tomlin, Richard Lushman and Jacob Lushman. There is potential in the area for uranium, tungsten and base metal mineralization, and new occurrences of all these were discovered. Two new uranium occurrences seem to be particularly significant. Office and laboratory work was mainly concerned with the production of a map and a report of the area around Terrenceville, Fortune Bay.



INDEX MAP

Ian Knight: The project is designed to provide geological map coverage of the area underlain by carbonates along the west coast of Newfoundland. During 1983, mapping was done in the Port Saunders (N.T.S. 12I/11) and St. John Island (N.T.S. 12I/14) areas, and in parts of the Torrent River (N.T.S. 12I/10) and Belburns (N.T.S. 12I/15, 16) areas. Field assistants were Doug Boyce, Kevin Austin, Mike Basha and Ashley Phillips. The potential in the area is for lead and zinc deposits, for example, the zinc at Daniel's Harbour, and for onshore oil and gas. Several new occurrences of lead and zinc minerals were found and indications of hydrocarbons were noted in several rock units.

Office work was completed on a 358-page report about the rocks southeast of St. George's Bay and the report was published in February, 1983. Office work was continued through 1983 on the rocks that occur along the west side of the Great Northern Peninsula.

STATISTICS

In 1983, geological mapping was completed on the equivalent of four 1:50,000 N.T.S. map areas, with a total area of about 4800 km2.

The total budget was $421,807, giving a cost of $88 per km2.

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(2) Geochemistry data for Middle Ridge Granite.
(3) Map and Notes: Great Gull Lake.
(4) Map (Open File): Dolland Brook (west half).

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(1) Current Research, Report 83-1.

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(1) Major Early Ordovician (Late Tremadoc - Early Arenig) regression-transgression, Iapetus Ocean (Abstract). In Evolution of the Ancient Continental Margin of western Newfoundland, Program with Abstracts, Geological Association of Canada (Newfoundland Section), Annual Spring Meeting, 1983.

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Dickson, W.L.
(1) Ackley Granite, Report 83-6.

Dickson, W.L. and Tomlin, S.L.
(1) Current Research, Report 83-1.
(2) Current Research, Geological Survey of Canada.

Hibbard, J.
(1) Current Research, Report 83-1.

Hyde, R.S. and Knight, I.
(1) Stratigraphic and tectonic evolution of Carboniferous basins in western Newfoundland (Abstract). In Evolution of the Ancient Continental Margin of western Newfoundland, Program with Abstracts, Geological Association of Canada (Newfoundland Section), Annual Spring Meeting, 1983.

King, A.F. and O'Brien, S.J.
(1) Stratigraphy, sedimentology and structure of the Avalon Zone in Newfoundland (Abstract). In Le Maroc et L'orogenie Paleozoique. I.G.C.P. Project 27 Annual Meeting, Rabat, Morocco, August 25, 1983.

Knight, I.
(1) Current Research, Report 83-1.
(2) Bay St. George Carboniferous Basins, Memoir 1.
(3) Open File Map 83-110.
(4) Open File Map 83-111.
(5) Middle and Upper Cambrian platform carbonates, western Newfoundland: anatomy of a high-energy shelf (Abstract). In Evolution of the Ancient Con-

tinental Margin of western Newfoundland, Program with Abstracts, Geological Association of Canada (Newfoundland Section), Annual Spring Meeting, 1983.

O'Brien, S.J.
(1) Current Research, Report 83-1.

O'Brien, S.J. and Tomlin, S.L.
(1) White Bear River, Open File Map.

O'Brien, S.J., Wardle, R.J. and King, A.F.
(1) The Avalon Zone: a Pan-African terrane in the Appalachian orogen of Canada. Geological Journal, 18, pages 195-222.

O'Brien, S.J. and Taylor, S.W.
(1) Geology of the Baine Harbour and Point Enragee map areas, Newfoundland, Report 83-5.

MINES BRANCH

MINERAL DEVELOPMENT DIVISION

REGIONAL MAPPING - LABRADOR

INTRODUCTION

The Labrador mapping Section is responsible for increasing geological map coverage of Labrador at the 1:100,000 scale. In 1982 and 1983, most of this work was funded by the Geological Survey of Canada under the Canada-Newfoundland Cooperative Minerals Program.

Most of the office work performed by the section in 1983 involved report and map preparation for field work carried out during the 1983 and previous field seasons. The results of this work are published in 'Current Research', Report 84-1.

STAFF

Senior Geologist: Richard Wardle

Project Geologists:

Ges Nunn
Western Grenville project

Andre Thomas
Central Grenville project

Bruce Ryan
Nain-Churchill project

Charles Gower
Eastern Grenville project

Federal Contract Project Geologist:

Philippe Erdmer
Eastern Grenville (Long Range)

BUDGET

The total budget for the section in the 1983-84 fiscal year was $723,871. Of this total, $530,671 were federal funds allocated under the cooperative program, and $193,200 were provincial funds assigned outside of the program. Section members A. Thomas, B. Ryan and C. Gower are all provincial employees working on the cooperative program but using federal field funding. G. Nunn is a provincial employee funded through the Canada Interchange Program. P. Erdmer is a federal contract geologist seconded to the Labrador section for the duration of the cooperative program.

PROJECT SUMMARIES

Senior Geologist Project (R. Wardle)

R. Wardle spent most of the field season mapping in the North West River area (13F/9). He also spent two weeks in northern Labrador completing a project across the boundary between the Nain and Churchill geological provinces in the Nachvak Fiord area.

Temporary Project Staff:
Senior assistant: Christopher Ash

Western Grenville Project (Ges Nunn)

This project involved mapping of four 1:50,000 N.T.S. map sheets (areas 23A/9, 10, 15 and 16) in the area around Atikonak Lake, southwestern Labrador. The mapping was carried out by a five-person field crew with full-time helicopter support. The party shared a camp with the Central Grenville project near Lac Ghyvelde.

Temporary Project Staff:
Senior assistant: Nat Noel

Junior assistants: Dave Bishop, Terry Rees and Loretta Crisby

Central Grenville Project (A. Thomas)

This project was carried out by a seven-person field crew working in the area immediately east of the Western Grenville project (N.T.S. 13D/11, 12, 13 and 14) and sharing full-time helicopter support.

Temporary Project Staff:
Senior assistants: George Mannard and Gerry Whelan
Junior assistants: Celeste O'Flaherty, Gilbert Wong and Rennie Nugent
Cook: Geralyn Lynch

Nick Culshaw, a project geologist from the Geological Survey of Canada, was assigned to the project for one month and completed mapping the part of the area in Quebec.

Nain-Churchill Project (B. Ryan)

The Nain-Churchill project involved the mapping of two N.T.S. sheets in the Hebron Fiord area, northern Labrador (N.T.S. 14L/2 and 14L/3). The seven-person field crew was based at St. John's Harbour, Saglek Fiord, and provided with 1.5 months of helicopter support.

The project experienced severe delays at the start of the season due to late pack ice conditions. This was later compounded by helicopter problems and forced abandonment of plans to map area 14L/4.

Temporary Project Staff:
Senior assistant: Yvon Martineau
Junior assistants: Tim Froude, Dan Lee, Roland Wells and David Polard
Cook: Doug Meadus

The project was also greatly assisted by the efforts of John Korstgard, University of Aarhus; David Bridgwater and Lhasa Schiotte, University of Copenhagen; and Fleming Mengel of Memorial University. These persons were involved in geological research projects within the project area and contributed greatly to the overall program.

Eastern Grenville Project (C. Gower)

The project was designed to map a large area with poor rock exposure in eastern Labrador which had been bypassed in earlier mapping. The work involved a three-person field crew with approximately 1.5 months of helicopter support and covered N.T.S. sheets 13K/1, 13K/8, and 13J/3, 4, 5 and 6. The party was based at the BRINEX exploration camp at Melody Lake.

Temporary Project Staff:
Junior assistants: Tony Power and Peter King

Eastern Grenville (Long Range) Project (P. Erdmer)

This project was a reconnaissance program designed to provide the basis for a long-term mapping project in the Precambrian inlier of the Long Range Mountains, insular Newfoundland. Work was concentrated in the Cat Arm hydro development area, the Upper Humber River and Main River areas, and along White Bay.

Work was performed by a two-person field crew, using road and coastal access supplemented by two weeks of helicopter support.

Temporary Project Staff:
Junior assistant: Brad Mercer

Summary

Field work started in June (July in the case of the Nain-Churchill

project) and ended in late August - early September. This work resulted in coverage of an additional 4% of Labrador at the 1:100,000 scale in 1983. Map coverage of Labrador at this scale now stands at 39%.

Work before and after the field season also included preparation of data sheets for inclusion in the Canadian Society of Petroleum Geologists' Lexicon of Atlantic Provinces Stratigraphy.

PUBLICATIONS

Reports and Maps Produced

R. Wardle
Nain-Churchill Province cross-section, Nachvak Fiord. Current Research, Report 83-1.

B. Ryan, Y. Martineau, D. Bridgwater, L. Schiotte and J. Lewry
The Archean-Proterozoic boundary in the Saglek Fiord area, Labrador - Report 1. Current Research, Report 83-1.

B. Ryan, A. Kay and I.F. Ermanovics
Geology of the Makkovik Subprovince between Kaipokok Bay and Bay of Islands, Labrador. Maps 83-38 to 83-41 with accompanying notes.

C. Gower
Geological maps: Sandwich Bay (83-45), Table Bay (83-46), Groswater Bay (83-43), English River (83-44) and Rigolet (83-42).

A. Thomas and Wood, D.
Geology of the Winokapau Lake area, Grenville province, Central Labrador. Current Research, Report 83-1.

A. Thomas
Geological maps: Letitia Lake-Wapustan Lake (83-1), Metchin River (83-30), Hope Lake (83-32) and Mountaineer Lakes-East Red Wine Mountains (83-33).

G. Nunn and A. Christopher
Geology of the Atikonak River area, Grenville Province, western Labrador. Current Research, Report 83-1.

P. Erdmer
Preliminary report on the geology north of Upper Lake Melville, Labrador. Current Research, Report 83-1.

External Publications

J.D. Hill and A. Thomas
Correlation of two Helikian peralkaline-granite-volcanic centres in central Labrador. Canadian Journal of Earth Sciences, Volume 20, pages 753-763.

Conference Presentations

R. Wardle
Geological Association of Canada Annual Meeting, Victoria, B.C., May, 1983. Tectonic evolution of the Nain-Churchill boundary, Nachvak Fiord, Labrador. Geological Association of Canada, Program with Abstracts, Volume 8, page A72.

C. Gower
Canadian Institute of Mining and Metallurgy, Newfoundland Section, Annual Meeting, St. John's. Mineral potential of paragneiss in the Grenville Province of eastern Labrador.

B. Ryan gave invited lectures at the Universities of Aarhus and Copenhagen, Denmark, in December, 1983, on the geology of Labrador and its similarities with Greenland.

MINES BRANCH

MINERAL DEVELOPMENT DIVISION

CARTOGRAPHY

INTRODUCTION

Maps are a primary means of communicating geological information. The section takes the manuscript maps produced by the department's scientists through the various stages of production to the final components required for printing. This capability applies to both black and white and multicolor maps. The section also produces a variety of other illustrative material for the department staff, including slides for oral presentation and graphic displays for workshops and meetings.

BUDGET

Salaries, equipment and supplies, base maps, photographic costs, and travel for the 1983-84 fiscal year totaled $158,803.

PERSONNEL

The section consisted of one chief cartographer and two cartographic technicians during 1983. Because of the heavy workload, the section worked many hours of overtime and it was necessary to employ an extra cartographic technician for part of the year.

Chief Cartographer: Ken Byrne
Cartographic Technicians: Dave Leonard and Tony Paltanavage

SCRIBING AND MAP PRODUCTION

The section is responsible for the scribing of geological maps, the preparation of type overlays and color separation negatives for color proofing maps, and the preparation of composite and printing negatives. It is also responsible for checking register and color during map printing, both in and out of the province.

ILLUSTRATIVE MATERIAL

Approximately 1200 figures, illustrations and perspective

Published Maps (131)

Scale	Multicolor	Three Color	Two Color	Open File Various Scales
1:1,000,000	1	-	-	
1:250,000	29	2	-	
1:125,000	1	-	-	
1:100,000	-	5	8	
1:50,000	-	1	6	
Total	31	8	14	78

Presently Being Draughted (70)

Scale	Three Color	Two Color	Black & White	Open File
1:250,000	4	-	-	-
1:100,000	-	3	-	60
1:50,000	-	2	1	-
Total	4	5	1	70

drawings (including 14 multicolor and 30 two color) for various reports were completed in 1983.

GRAPHIC ART AND DISPLAY MATERIAL

Approximately 115 various graphs, charts, slides etc. for displays and talks were also completed in 1983.

SPECIAL PROJECTS

- Preliminary Version 1:1,000,000 Newfoundland Geology Map (color)

Due to time constraints and high cost, it was not possible to produce a 1:500,000 multicolor version of the new geological map of Newfoundland by traditional techniques. Alternative methods of producing an acceptable product were explored and the color scanning process was chosen.

A hand-colored geological overlay of the 1:1,000,000 Newfoundland base was produced using Berol Prismacolors. This overlay was then color separated into four overlays using a color scanner and printing negatives were prepared and sent to the printers.

The final map was deemed entirely acceptable and serious consideration is being given to further use of this process.

- Color Illustrations for Reports (Report 84-2, Reconnaissance and detailed geochemical surveys for base metals in Labrador)

To clarify some of the more complex illustrations included in this report, it was necessary, for the first time, to print them as multicolor figures.

STUDENT TOURS

During the year, the section was called upon from time to time to provide demonstrations and a brief outline of its operations to students of the university, technical colleges and various high schools in the area.

MINES BRANCH

MINERAL DEVELOPMENT DIVISION

PUBLICATIONS AND INFORMATION SECTION

BUDGET

The budget for the 1983-84 fiscal year was $349,197. Revenue from the sale of publications and related materials was $33,000.

PERSONNEL

During 1983, the Head of the Section was Rex Gibbons, Senior Geologist/Editor. In Report Production, there were one Review Geologist/Technical Editor, Jane Murray, three word processor (WP) operator positions, and one clerk-typist, Eva Fost. The lead operator was Debbie Downey. The other operators were Trudy Parsons (Cluster Administrator) and Bev (French) Strickland. Parsons moved to a new position in Treasury Board and Strickland was promoted to Cluster Administrator. Denise Gamberg was hired as a new WP operator. Eva Fost was promoted to WP operator in the Energy Branch and Judy Morgan was hired as her replacement. For the winter of 1983, Philip Saunders and Douglas Boyce assisted Murray as copy editors. For the winter of 1984, Gerald Whelan was copy editor.

In Technical Information, there were a mineral exploration consultant as supervisor, Norman Mercer; a librarian, Genie Power; an information (sales) officer, Randy Meehan; and a microfiche clerk, Doreen Mahon (hired in mid-year). Positions of sales clerk and library assistant remained vacant all year due to inadequate funds. Catherine Patey continued as geologist in charge of GEOSCAN. However, there were no funds available to hire a seasonal assistant to help with GEOSCAN coding.

In Core Storage, Alvin Harris continued as project geologist operating out of St. John's and Stewart Cochrane continued to work at the Pasadena core library. During the 1983 field season, Gerard Humber and Collis Warren, both students of Mineral Technology at Bay St. George Community College, Stephenville, were hired to help with core collection and indexing.

The Section had no personnel specifically assigned to Educational Services, Public Relations and Advertising.

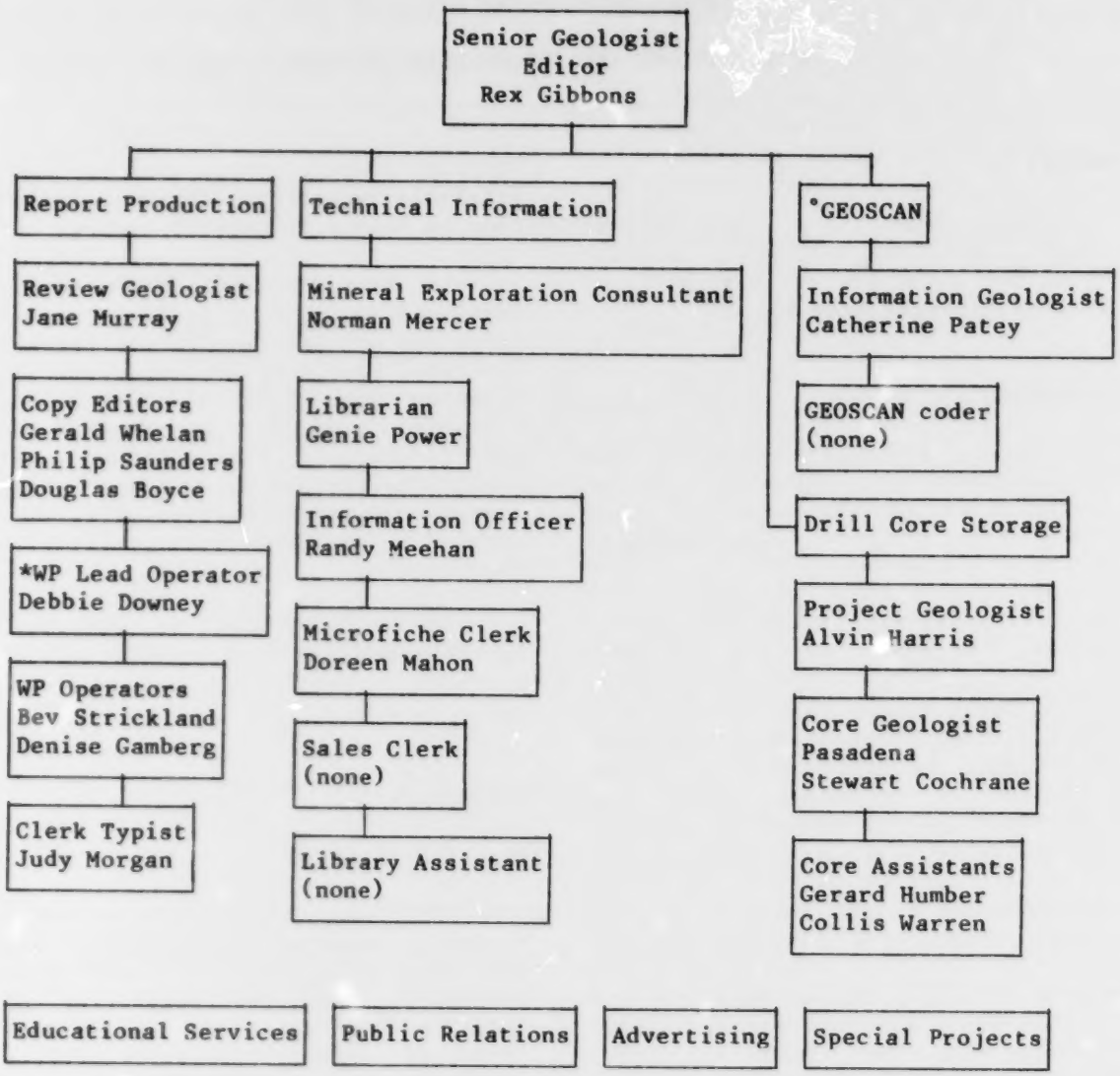
ACTIVITIES

Report Production

1983 was a very busy year. Numerous reports, open files, and maps were edited and published. Work concentrated on the completion of projects done under the Canada/Newfoundland Mineral Development Subsidiary Agreement (1976-1982). Current Research and preliminary reports were processed for the Canada/Newfoundland Cooperative Minerals Program (1982-1984).

The most significant single accomplishment of the year was the completion of editing, typesetting and photographic work on the Jim Hibbard memoir on the Baie Verte Peninsula. This memoir (#2) is expected to be printed by mid-1984.

PERSONNEL CHART, 1983



* WP - Word Processor.

°GEOSCAN - Computerized bibliographic index to mineral occurrence and related data.

Progress also continued on several other major reports which are expected to be completed in 1984-85. These include Bruce Ryan's memoir (#3) on the Central Mineral Belt of Labrador, John McConnell's review report on geochemistry of base metals in Labrador, and several standard geological reports on mapping programs.

An appendix to this annual report lists all the reports, maps, and files released in 1983.

Core Storage Project

During the 1983 field season, core collection was completed from abandoned drilling sites and temporary storage sites in insular Newfoundland. In total, 19,899 m of core were collected from eight sites and 99 m of core were moved from temporary storage at Springdale to permanent storage in the Pasadena core library.

On April 1, 1983, there were 86,228 m of drill core in the Pasadena library. As of September, 1983, after the field season, approximately 114,000 m were there. All of this has been organized by drill hole number and placed on the core racks and is available for inspection and study. Of this total, 27,535 m had been indexed in detail by December 31, 1983.

Also during the 1983 field season, checking was completed of abandoned drill sites in the eastern part of the Central Mineral Belt of Labrador. Twenty sites were visited in August, 1983, in addition to Brinex storage sites at Kitts, Michelin, Burnt Lake and Melody Pond. All drill core in central and eastern Labrador has now been collected or is being stored safely by private companies.

About 1300 boxes of core are stored in the Goose Bay library. Of these, 1139 boxes (= 8,496 m) were catalogued and indexed in 1983. Another 1487 m of core will be indexed during 1984.

In 1983, the Department adopted a policy whereby it will provide confidential core storage for a limited time period for active exploration projects. Several companies took advantage of this new policy and are now storing some core in the Pasadena library and using the laboratory for research on the core.

After the 1983 field season, a preliminary index was prepared of the drill core stored in all three libraries (Pasadena, Goose Bay and Torbay). This index was distributed at the Department's Annual Review of Activities in November, 1983, and was found to be quite useful by the exploration industry. A computerized index is presently being prepared from this manual index.

Technical Information

The Section maintains an assessment report library and a technical library for the Mines Branch. The technical library is mainly for use of Department staff. Activities included purchasing, indexing and filing of new reference books, maintaining subscriptions for technical periodicals, and related library services.

The assessment report library contains reports and other documents and maps on the province's geology and mineral resources. About 400 new documents were acquired and indexed during 1983. About 200 new assessment reports were placed in confidential files and about 100 reports were removed from confidential status and made available to the public.

The level of usage by the public was relatively high in 1983 despite some reduction in mineral exploration. Explorationists, geotechnical and mining consultants, university geoscientists, prospectors, and others maintained a steady flow of visitors to our offices and kept the librarian busy retrieving and refiling reports. Some explorationists spent several days researching projects and consulting with our staff about mineral exploration potential in the province.

Microfiching of assessment reports and publications was slowed considerably for much of 1983 because the position of microfiche clerk was vacant and frozen. Doreen Mahon was hired in November and rapidly started to take care of the backlog, concentrating on the 1350 files in the Newfoundland General Series. This series is expected to be completed and released for sale by mid-1984.

Other items fiched in 1983 included 200 new mineral assessment reports, new departmental reports, maps and open files (see Appendix), several theses, and several batches of mineral occurrence records.

A new map index to assessment reports is in preparation and was brought to draft stage in 1983. More updating will need to be done in 1984 before it is published.

The publications distribution center continued to grow in 1983 as more new reports were published. A growing problem is storage space, because publishing is proceeding much faster than sale and distribution.

GEOSCAN

GEOSCAN is a computerized bibliographic index to mineral assessment reports and related data on Canada. In 1983, we continued to input the Newfoundland and Labrador contribution for reports and maps in our assessment report library. In 1982, the National GEOSCAN Center in Ottawa implemented a new computer system, MINISIS, to input and retrieve the data more efficiently. In 1983, both the old and the new systems operated concurrently as the old data were converted and new data were input directly to the new system. Searches for information on the province's mineral resources can now be done directly online to the Ottawa computer from the Department's offices in St. John's. Searches can also be done on other systems, for example, GEOREF from the United States.

Educational Services

In 1983, the Section continued to provide a variety of educational services to the province's schools. About 100 rock and mineral sets were distributed free to teachers involved in teaching earth science in high school or about mineral resources in elementary school. Brochures and maps on mining and geology were distributed free to schools that requested them.

The Section participated in several school Careers Days, where talks were given on mining in Newfoundland and Labrador. Assistance was also provided in judging several science fairs.

In cooperation with the Department of Education, the Section helped to finalize a slide set on the Buchans mine. In cooperation with the Newfoundland Section of the Geological Association of Canada, the Section helped to distribute the Newfoundland Journal of Geological Education to schools throughout the province.

The Section would like to do more on slide sets, field trip guides and related needs of the province's

schools but cannot do so without additional staff to assign to these tasks.

Public Relations and Advertising

The Section coordinates the preparation of news releases for the Mines Branch, for example, end-of-year review of mining for the past year plus occasional updates or special events. -In 1983, major releases were prepared to coincide with the Prospectors Convention in Toronto in March and the Canadian Institute of Mining (Newfoundland Branch) meeting and the Department's open house in November in St. John's. Displays were presented promoting mining opportunities in the province in both these cases as well. The Section also had a display at the Newfoundland Section (G.A.C.) meeting in 1983. Cooperation is extended to the CIM, GAC and any other technical group associated with mineral resources to promote the potential of Newfoundland and Labrador.

The Section represented the Department at several public meetings. Some of the biggest were: St. John's Board of Trade Business Outlook, Changing Tides conference on resources by MUN Extension, and Western Newfoundland Economic Conference in Corner Brook. If travel can be arranged, Section officers are pleased to talk to any public group about the province's mineral resources.

List of Publications 1983

Publications and Information Section
Nfld. Dept. of Mines and Energy
P.O. Box 4750, St. John's, Nfld. A1C 5T7
Tel. (709) 737-3159
Telex 016-4724

MEMOIR 1

Geology of the Carboniferous Bay St. George Subbasin, Western Newfoundland, by Ian Knight. Includes Map 82-1(colored) and Illustrations. Report, 358 pages. **PRICE:$30.00 (Soft Cover), $50.00 (Hard Cover).**

REPORT 83-1

Current Research. Contains technical reports on 1982 field and office projects of the Mineral Development Division. Compiled and edited by M.J. Murray, P.D. Saunders, W.D. Boyce and R.V. Gibbons. Report 228 pages. **PRICE: $10.00**

REPORT 83-2

Inventory of Aggregate Resources in Newfoundland and Labrador - Report and Index maps by F.T. Kirby, R.J. Ricketts and D.G. Vanderveer. (To accompany aggregate resource Map Series, 1:250,000 - Open Files Nfld. 1287 and Lab. 602). **PRICE: $3.00 (Report only)**

Aggregate Resource Maps to accompany this report are:

Open File Nfld. 1287		Open File Lab. 602	
83-01	Trepassey, 1K	83-18	Minipi Lake, 13C
83-02	St. Lawrence, 1L	83-19	Lac Joseph, 23A
83-03	Port aux Basques, 11O	83-20	Opocopa Lake, 23B
83-04	Burgeo, 11P & 11I	83-21	Shabogamo Lake, 23G
83-05	Belleoram, 1M	83-22	Osokmanuan Lake, 23H
83-06	St. John's, 1N	83-23	Winokapau Lake, 13E
83-07	Bonavista, 2C	83-24	Goose Bay, 13F
83-08	Gander Lake, 2D	83-25	Rigolet, 13J
83-09	Red Indian Lake, 12A	83-26	Snegamook Lake, 13K
83-10	Stephenville, 12B	83-27	Kasheshibaw Lake, 13L
83-11	Bay of Islands, 12G	83-28	Shefferville, 23J
83-12	Sandy Lake, 12H	83-29	Makkovik, 13O
83-13	Botwood, 2E		
83-14	Wesleyville, 2F		
83-15	Port Saunders, 12I		
83-16	Blanc-Sablon, 12P		
83-17	St. Anthony, 2M		

PRICE: $50.00 for a package of all the maps listed plus the report. Individual maps can be purchased for $3.00 each.

REPORT 83-3

Fossils of Northwestern Newfoundland and Southeastern Labrador - Conodonts and Trilobites, by Svend Stouge and W. Douglas Boyce. **PRICE: $3.00**

REPORT 83-4 Geology of the King George IV Lake Map area (N.T.S. 12A/4), Newfoundland, by B.F. Kean. (Includes 1:50,000 Scale Geology Map plus cross-section). Report, 67 pages. **PRICE: $6.00**

REPORT 83-5 Geology of the Baine Harbour (1M/7) and Point Enragee (1M/6) Map Areas, Southeastern Newfoundland, by S.J. O'Brien and S.W. Taylor. (Includes two 1:50,000 scale geology maps plus a cross-section). **PRICE: $8.00**

REPORT 83-6 Geology, Geochemistry and Mineral Potential of the Ackley Granite and parts of the North West Brook and Eastern Meelpaeg Complexes, Southeast Newfoundland (Parts of Map Areas 1M/10, 11, 14, 15, 16; 2D/1, 2, 3 and 7), by W.L. Dickson. (Includes 1:100,000 Scale Geology Map). Report, 130 pages. **PRICE: $8.00**

REPORT 83-7 Geology of the Grandys Lake Map Area (11O/15), Newfoundland. Part I by Lesley Chorlton, Part II by Ian Knight. Includes 1:50,000 Scale Geology map and cross-section. Report, 125 pages. **PRICE: $6.00**

Labrador Mineral Occurrence Maps

Map 8336 13K, Snegamook Lake (1:250,000) (Printed)
Map 8337 13K/5, Wuchusk Lake (1:50,000) (Printed)
Map 8347 Parts of 13J and 13O, Kaipokok Bay - Big River (1:100,000) (Printed)

PRICE: $3.00 each

NEWFOUNDLAND GEOLOGY MAPS

Map 83-106, New Preliminary Coloured Geological Map of Newfoundland, by Jim Hibbard, 1983. 1:1,000,000. **PRICE: $5.00**

LABRADOR GEOLOGY MAPS

Map 8330, Metchin River (13E/11), Labrador, by A. Thomas, V. Jackson and G. Finn (1980). 1:100,000. **PRICE: $3.00**

Map 8330A. This map contains the information on Map 8330 plus geochemical sample locations. **PRICE: $3.00**

Map 8331, Letitia Lake - Wapustan Lake area, Labrador (13L/1, 13K/4 and parts of 13L/2 and 13L/8), by A.Thomas and D. Hibbs (1978 and 1979); in part compiled from Brummer and Mann (1961), Curtis and Currie (1981) and Emslie et al. (1978). 1:100,000. **PRICE: $3.00**

Map 8331A. This map contains the information on Map 8331 plus geochemical sample locations. **PRICE: $3.00**

Map 8332, Hope Lake - Disappointment Lake area, Labrador (13E/9, 10, 15, 16), by A. Thomas, V. Jackson and G. Finn (1980); in part compiled from Curtis and Currie (1981) and Emslie et al. (1978). 1:100,000. **PRICE: $3.00**

Map 8332A. This map contains the information on Map 8332 plus geochemical sample locations. **PRICE: $3.00**

Map 8333, Mountaineer Lakes - East Red Wine Mountains area (13F/12, 13), Labrador, by A. Thomas, V. Jackson and G. Finn (1980). 1:100,000. **PRICE: $3.00**

Map 8333A. This map contains the information on Map 8333 plus geochemical sample locations. **PRICE: $3.00**

Map 8338	Post Hill 13J/13E	Descriptive notes and geological maps of the Makkovik Subprovince between Kaipokok Bay and Bay of Islands, Labrador, by A.B. Ryan, A. Kay and I.F. Ermanovics, 1981. 1:50,000. **PRICE: $4.00 for package**
Map 8339	Post Hill 13J/13W	
Map 8340	Bay of Islands 13O/4E	
Map 8341	Bay of Islands 13O/4W	

Map 8342, Rigolet (Part of 13J), Labrador, by C.F. Gower, 1979; and C.F. Gower, N. Noel and R.T. Gillespie, 1980. 1:100,000. **PRICE: $3.00**

Map 8343, Groswater Bay area (Parts of 13J and 13I), Labrador, by C.F. Gower, 1979, and C.F. Gower, N. Noel and R.T. Gillespie, 1980. 1:100,000. **PRICE: $3.00**

Map 8344, English River area (Part of 13G), Labrador, by N. Noel, R.T. Gillespie and C.F. Gower, 1980; and C.F. Gower and G. Finn, 1981. 1:100,000. **PRICE: $3.00**

Map 8345, Sandwich Bay area (Part of 13H), Labrador, by C.F. Gower, N. Noel and R.T. Gillespie, 1980; and C.F. Gower, G. Finn and V. Owen, 1981. 1:100,000. **PRICE: $3.00**

Map 8346, Table Bay area (Part of 13H), Labrador, by V. Owen, C.F. Gower and G. Finn, 1981. 1:100,000. **PRICE: $3.00**

OPEN FILES

NEWFOUNDLAND

Nfld. 1300 & Lab. 607 Environmental Geology Section, 1983.
These open file maps outline zones of potential for aggregate resources within a 6 km wide corridor along all transportation routes in Newfoundland and Labrador. The maps also include the locations of pits and quarries as well as the locations and types of samples (sand, gravel, silt, clay, glacial till, rocks) collected during field surveys. The maps provide an index to geotechnical and other related data collected during field and laboratory testing (e.g. particle size analyses, lithologic analyses, petrographic numbers, landform and stratigraphic data, etc.); these data are also available upon

request. The map data are available on microfiche or as 1:50,000 scale blue-line copies. **PRICE: $17.00 (Nfld. 1300 - 33 microfiche duplicates), $13.00 (Lab. 607 - 25 microfiche duplicates)**

Nfld. 1267 & Lab. 598 Environmental Geology Section, 1983.
These open files consists of site maps and field maps from all surficial and glacial mapping and aggregate resource mapping project areas. These are raw data in both note and map format and are available only on microfiche. **PRICE: $46.00 (Nfld. 1267 - 92 microfiche duplicates), $25.00 (Lab. 598 - 49 microfiche duplicates)**

Nfld. (1315) Vanderveer, D.G. 1983
Aggregate - The Often Maligned and Often Forgotten Industrial Mineral. (20 pages) **PRICE: $3.00**

Nfld. (1316) Humber Arm North. (Stream Sediment Geochemistry)
Meyer, J.R., Butler, A.J., Davenport, P.H., 1983.
The sampled area is located northwest of Corner Brook, western Newfoundand. The survey covers approximately 175 km2 between Middle Arm and Goose Arm to the north, and Humber Arm to the south, including parts of NTS sheets 12A/13, 12B/16, 12G/1, and 12H/4. The underlying sandstone-siltstone-shale sequence is part of the allochthonous Humber Arm supergroup of Cambrian age. Lake sediment geochemistry indicates localized Zn, Pb, and Cu anomalies. Samples were analyzed for Zn, Pb, Ni, Cu, Ag, Co, Cd, Fe, F, Mn, and L.O.I. This open file contains 9 single element maps (no Ag), a loss-on-ignition map, 5 regression maps (residual Co and Ni, after regression with Fe; residual Pb, Zn, and Cd after regression with Mn and L.O.I.), a sample location map and a brief report. **PRICE: $25.00 (paper), $3.00 (microfiche).**

1K (19) Avalon South (Stream Sediment Geochemistry)
Meyer, J.R., Butler, A.J., Davenport, P.H., 1983.
The sampled area is located on the Avalon Peninsula. This survey covers approximately 160 km2 located on NTS map sheet 1K/14, northwest of Route 10 between Portugal Cove South and Capahayden. The underlying fine grained clastic sediments belong to the Conception Group of Hadrynian age, and Pb, Zn, and Co anomalies are indicated by lake sediment geochemistry. The survey also includes an area of 5 km2, south of Fermeuse Harbour (on NTS map sheet 1K/15), underlain by a sandstone-shale sequence of the Hadrynian St. John's Group. Samples were analyzed for Zn, Pb, Ni, Cu, Ag, Co, Cd, Fe, F, Mn, and L.O.I. This open file contains 8 single element maps (no F, or Ag), a loss-on-ignition map, 4 regression maps (residual Zn, Ni, Co and Cd, after regression with Mn, a sample location map and a brief report. **PRICE: $25.00 (paper), $3.00 (microfiche).**

1N (440) Avalon North (Stream Sediment Geochemistry)
Meyer, J.R., Butler, A.J., Davenport, P.H., 1983.
The sampled area is located on the Avalon Peninsula. This survey covers approximately 150 km2 located on NTS map sheets 1N/11 and 1N/14. The area is underlain mainly by thinly interbedded siltstone and black shale of the Hadrynian Carbonear Formation. A regional Zn anomaly is indicated by lake sediment geochemistry, along with Pb and Ag anomalies of lesser areal extent. Samples were analyzed for Zn, Pb, Ni, Cu, Ag, Co, Cd, Fe, F, Mn, and L.O.I. This open file contains 9 single element maps (no F), a loss-on-ignition map, 4 regression maps (residual Zn, Ni, Co and Cd, after regression with Mn), a

sample location map and a brief report. **PRICE: $25.00 (paper), $3.00 (microfiche).**

Nfld. (1317) Lithogeochemistry of Mid-Ordovician Cherts and Shales of Central Newfoundland, Dean, P.L. and Meyer, J.R., 1983
This release presents the results of lithogeochemical sampling of Mid-Ordovician (Caradocian) cherts and shales of Central Newfoundland. Twenty-four sections were mapped in detail and 995 chip samples were collected from 1500 m of strata. Sample intervals were 3 metres in unmineralized sections and 1 metre in sections containing one or more intervals with an estimated 5% or greater sulphide mineralization. Continuous sampling was carried out across massive banded sulphides. Sedimentological, structural and paleontological data were collected throughout the mapping program. All data have been coded and entered into computer files for comparison with the analytical results. All samples were analyzed for Ba, V, Cu, Zn, Ni, Ag, Pb, Co, U, F, H_2O, S, Co_2, SiO_2, Al_2O_3, Fe(total), MgO, CaO, Na_2O, K_2O, TiO_2, MnO, P_2O_5, L.O.I. This file consists of: a computer printout of all analytical and field data, basic statistics for each section and for the cmplete data set, descriptions and location maps for each section, and detailed lithologic drafts for each section at a scale of 1:100. **PRICE: $30.00 (paper), $4.00 (microfiche).**

Nfld. (1318) Gamma Ray Spectrometry Survey South Coast, Newfoundland 1983.
Airborne gamma-ray spectometric survey results obtained by the GSC are being released as the following Geophysical Series Maps:

36611(9)G	NTS 11P/9 Part of 1M/12	Facheux Bay
36611(10)G	NTS 11P/10	La Hune
36611(11)G	NTS 11P/11	Ramea
36611(14)G	NTS 11P/14	White Bear River
36611(15)G	NTS 11P/15	Dolland Brook
36611(16)G	NTS 11P/16 Part of 1M/13	D'Espoir Brook
35112(1)G	NTS 12A/1 Part of 2D/4	Cold Spring Pond
35112(2)G	NTS 12A/2	Wolf Mountain
35112(3)G	NTS 12A/3	Burnt Pond

Results are compiled at 1:50,000 scale as contour maps. Stacked profiles for each flight line are at 1:100,000 scale.

PRICE:
Paper - there are nine sets of maps and data costing $34.00 each for a total of $306.00.

Microfiche - there are six sets costing $4.00 each and three sets costing $4.50 each for a total of $37.50.

OPEN FILES

LABRADOR

The following four open files relate to data acquired under the Canada-Newfoundland cooperative minerals program, 1982-1984, as part of the National Geochemical Reconnaissance surveys.

13E (41) [G.S.C. Open File 901] - N.T.S. Survey Area 13E

LAB (613) [G.S.C. Open File 902] - N.T.S. Survey Area 22P, 23A, 23B

LAB (614) [G.S.C. Open File 903] - N.T.S. Survey Area 23G, 23H

LAB (615) [G.S.C. Open File 904] - N.T.S. Survey Area 23I, 23J, 23O

The 1982 survey area, including areas covered in 1978 for NTS 23G,H,I,J - G.S.C. Open File 560, covers approximately 80,000 km2 at an average sample density of one sample per 13 km2. Lake sediments were analyzed for Zn, Cu, Pb, Ni, Co, Ag, Mn, As, Mo, Fe, Hg, U, F, Cd, V and loss-on-ignition to estimate organic carbon content. Lake waters were analyzed for U, F and pH. Each Open File consists of 19 geochemical maps, one sample location map and text of field observations and analytical and statistical data.
PRICE: $45.00 each (paper), $3.00 each (microfiche).

GEOSCAN NEWFOUNDLAND PRODUCTS

GEOSCAN Newfoundland and Labrador National Topographical System Index - Last update, February, 1982, contains N.T.S. locations as keywords to bibliographical reference of indexed Newfoundland Mineral Development Division geofiles and indexed Federal Energy, Mines and Resources files, e.g. Geological Survey of Canada and Earth Physics Branch. **PRICE: $8.00 (16 Microfiche), $30.00 (Paper - 1070 pages)**

GEOSCAN Newfoundland and Labrador Keyword Index - Last update, February, 1982, contains various keywords to the same bibliographic references as above. Keywords used include some geographical area names, journal names, some formalized names of rock units, some methods names (e.g. magnetic surveys), some geological terms (e.g. tectonics), some mineral and element names, confidential files. **PRICE: $25.50 (51 Microfiche)**

GEOSCAN Newfoundland and Labrador Author Index - Last update, February, 1982, contains authors - personal, corporate, and institutional - to the same bibliographic references as above. **PRICE: $7.00 (14 Microfiche)**

GEOSCAN Newfoundland and Labrador Drill Hole Index - Last update, February, 1982, contains keywords - DRILL HOLES, DRILL HOLE LOGS, and DRILL HOLE SECTIONS - to the same bibliographic references as above. **PRICE: $1.00 (2 Microfiche)**

OPEN ASSESSMENT FILES ON MICROFICHE

(These are preliminary releases of only those open files that have been checked and which produced top quality microfiche.)

N.T.S. area 1K - 18 open files consisting of a total of 26 microfiche duplicates (also includes an index list). **PRICE: $8.00**

N.T.S. area 1L - 55 open files consisting of a total of 88 microfiche duplicates (also includes an index list). **PRICE: $44.00**

N.T.S. area 1M - 90 open files consisting of a total of 120 microfiche duplicates (also includes an index list). **PRICE: $60.00**

N.T.S. area 1N - 223 open files consisting of a total of 295 microfiche duplicates (also includes an index list). **PRICE: $150.00**

N.T.S. area 2C - 40 open files consisting of a total of 42 microfiche duplicates (also includes an index list). **PRICE: $20.00**

N.T.S. area 2F - 11 open files consisting of a total of 15 microfiche duplicates (also includes an index list). **PRICE: $8.00**

N.T.S. area 2L - 4 open files consisting of a total of 4 microfiche duplicates (also includes an index list). **PRICE: $2.00**

N.T.S. area 2M - 26 open files consisting of a total of 31 microfiche duplicates (also includes an index list). **PRICE: $16.00**

N.T.S. area 2D - 48 open files consisting of a total of 67 microfiche duplicates (also includes an index list). **PRICE: $34.00**

N.T.S. area 2E - 253 open files consisting of a total of 384 microfiche duplicates (also includes an index list). **PRICE: $190.00**

N.T.S. areas 11O, 11P and 12A. This release consists of 11O (47 open files consisting of 65 microfiche duplicates), 11P (48 open files consisting of 57 microfiche duplicates), and 12A (162 open files consisting of 274 microfiche duplicates). **PRICE: $32.00 (11O - complete set), $28.00 (11P - complete set), $137.00 (12A - complete set)**

N.T.S. areas 12B, 12G, 12I and 12P. This release consists of 12B (168 open files consisting of 227 microfiche duplicates, 12G (46 open files consisting of 64 microfiche duplicates), 12I (68 open files consisting of 89 microfiche duplicates) and 12P (29 open files consisting of 45 microfiche duplicates). An index list is included for each area. **PRICE: $113.00 (12B - complete set), $32.00 (12G - complete set), $44.00 (12I - complete set), $22.00 (12P - complete set)**

N.T.S. area 12H. - 257 open files consisting of a total of 362 microfiche duplicates (also includes index list). **PRICE: $182.00 (12H - complete set)**

NFLD. General Series (Part 1) - This release consists of 226 open files consisting of a total of 303 microfiche duplicates (also includes an index list). There are over 1300 open geofiles in the Newfoundland General Series.

This release involves only those files within the first 400 that have been checked and which produced good quality microfiche. These files consist of assessment reports and other documents of a regional nature on the geology and mineral resources of insular Newfoundland. **PRICE: $150.00 for the complete set***

TOTAL COST OF AVAILABLE OPEN GEOFILES ON MICROFICHE = $1,272.00

UPDATED MINERAL OCCURRENCE DESCRIPTIONS ON MICROFICHE

N.T.S. area 2E - 20 microfiche duplicates. **PRICE: $10.00**

N.T.S. area 12B - 10 microfiche duplicates. **PRICE: $ 5.00**

N.T.S. area 14C - 6 microfiche duplicates. **PRICE: $ 3.00**

External Publications, 1983-84

(Newfoundland Dept. of Mines and Energy authors in bold print)

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COLMAN-SADD, S.P. and **SWINDEN, H.S.,** in press. A tectonic window in Central Newfoundland? Geological evidence that the Appalachian Dunnage Zone may be allochthonous. Canadian Journal of Earth Sciences, **21,** .

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HILL, J.D., and **THOMAS, A.**, 1983. Correlation of two Helikian peralkaline granite-volcanic centres in central Labrador. Canadian Journal of Earth Sciences, **20**, pp. 753-763.

HYDE, R.S., and **KNIGHT, I.**, 1983. Stratigraphic and tectonic evolution of Carboniferous basins in western Newfoundland. In Evolution of the Ancient Continental Margin of western Newfoundland, Program with Abstracts, Geological Association of Canada (Newfoundland Section), Annual Meeting.

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STEPHENS, M.B., **SWINDEN, H.S.**, and SLACK, J.F., 1983. Correlation of massive sulfide deposits in the Caledonian - Appalachian orogen on the basis of paleotectonic setting. I.G.C.P. Project 60, Symposium on stratabound sulfides of the Appalachian-Caledonian orogen, Ottawa, Program and Abstracts, p. 28.

STEPHENS, M.B., **SWINDEN, H.S.**, and SLACK, J.F., in press. Correlation of massive sulfide deposits in the Caledonian-Appalachian orogen on the basis of paleotectonic setting. Economic Geology, **79(7)** .

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VANDERVEER, D.G., 1983. Aggregates - The Often Maligned and Forgotton Industrial Mineral. In 19th Forum on Geology of Industrial Minerals, Proceedings. Edited by S.E. Yundt, Ontario Geological Survey, Miscellaneous paper 114, pp. 65-78.

WARDLE, R.J., 1983. Tectonic evolution of the Nain-Churchill Province boundary, Nachvak Fiord, Labrador. Geological Association of Canada, Program with Abstracts, Annual Meeting, Victoria, B.C., **8**, p. A72.

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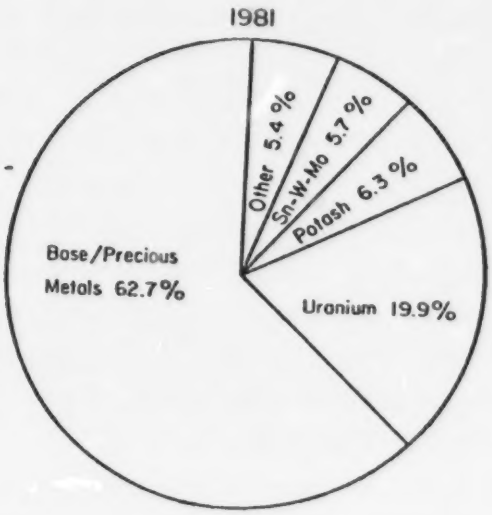
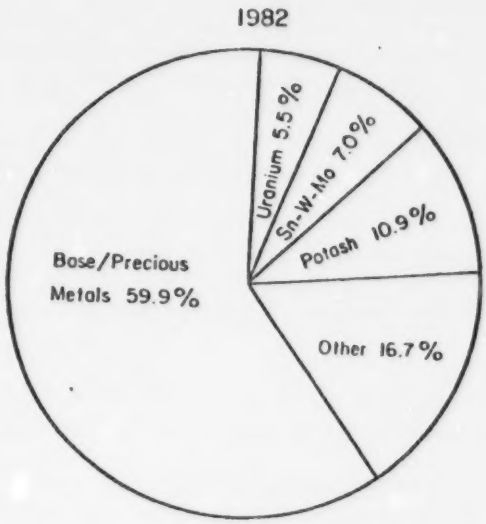
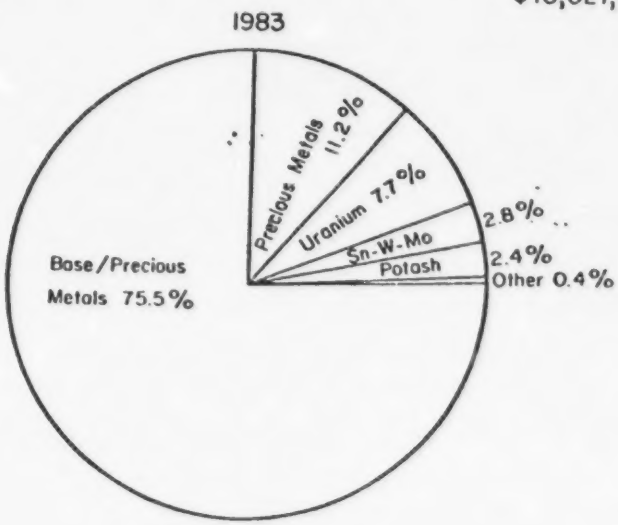
Exploration expenditures for 1983 totalled $7.727 million; this represents a decline from 1982 and 1981 which were $12.615 and $16.033 respectively. The forecast for 1984 exploration expenditures is for $6.5 ± .5 million. Field expenditures for general exploration for the three years (not including on-property exploration, lease rentals, property aquisition costs and head office expenses) are illustrated below:



$12,704,157



$10,027,285



$6,418,563

As can be seen above there is growing interest in Precious Metal exploration; the number and size of distinct Precious Metal programs in 1983 warrant segregation of expenditures in this area.

Claim staking thus far in 1984 has been on a par with the two years previous and is best described as slow but steady. To date (May 17th) 1212 claims have been staked, with 13,461 claims in good standing. For comparison the figures for these items over the past several years are tabulated below:

	1977	1978	1979	1980	1981	1982	1983
Staked	2085	8,876	6,255	13,099	13,661	4,670	4,522
IGS	3472	11,990	14,170	20,770	25,012	18,517	15,288

Most companies active in 1983 are back (or will be back) during the 1984 field season. Canadian Nickel active for the past three or four years in the Badger - Noel Pauls Brook area will not be doing any work this year because of budget restrictions; that company is optimistic for their properties and plans to be back in 1985. Utah Mines plans little or no further work on its properties in southwest Newfoundland but will be active this year in other areas at the reconnaissance level. Asamara Inc. have committed to a program to evaluate the chromite prospects in the Lewis Hills. Tasu Resources also in relation to chromite hopes to arrange joint venture financing and mount a major program on the Great Bend prospect in central Newfoundland. All considered the level of exploration activity this year is roughly the same as 1983.

The recent surrenders by Brinco and Reid Newfoundland Company sparked a very small amount of staking activity initially. The Nalco surrender has been processed and published in the Newfoundland Gazette; 1692.97 km2 of this former concession will be open on May 21, 1984. Several companies are interested and prepared to stake areas on the 21st. A number of properties have been forfeited subject to the Impost Act; the list of properties will be published on May 25th, 1984. These fee simples amount to only 25.15 km2 but one of the properties should definitely be staked immediately.

Western Newfoundland

In western Newfoundland, Teck Explorations Limited is presently conducting its 1984 exploration diamond drilling program around the Daniel's Harbour zinc mine. This year's drill program though reduced somewhat from last year is still quite healthy.

Another company, Narex Ore Search Consultants, conducted a diamond drilling program in the Round Pond area of the Great Northern Peninsula during late winter - early spring, 1983. This exploration work was conducted on claims staked by Narex in 1982 primarily for lead and zinc in the Cambro-Ordovician carbonates. Apparently this company will not be very active during 1984.

Further south, Westfield Minerals Limited continued its exploration efforts in the Humber Arm - Goose Arm area, investigating a number of anomalies outlined in a government lake sediment survey during 1983. Work was also conducted on a number of old mineral prospects in the area and some new showings were discovered. Westfield is active in this area again this year.

Between Bonne Bay and St. George's Bay, there is continued interest in base metals in the Bay of Islands igneous complex. Duval International Corporation has claims in the Gregory River area and has been actively exploring in the area for the past four years. Duval is planning a small drill program in this area during 1984. There has also been some interest expressed in the chromite potential of the area. Falconbridge Nickel Mines Limited, which held claims on the Bluff Head deposits, recently transferred them to Asamera Inc. of Calgary.

Asamera is planning to conduct a small exploration program on these chromite deposits during 1984. Work will include detailed geological, geophysical and geochemical surveys, with possibly some core drilling near the end of the season. Apex Limited of St. John's is expected to be doing most of the field survey work. These chromite prospects have been known about for a long time and a small amount of mining has been done in the past. The known deposits are small but of good grades, and there is potential for increased reserves.

In the Carboniferous rocks of the Deer Lake Basin and the St. George's Bay area, Westfield Minerals Limited still holds some mineral rights where it led a major exploration program for uranium in 1979-81.

Chutine Resources recently entered into a joint venture agreement with Westfield to start exploration work on the Deer Lake project on the Reid Lots and claims held by Westfield in the Deer Lake Basin. Chutine has the right to earn up to a 45% interest upon expenditures of up to $900,000 in four phases. Additional expenditures will be shared on a 45/55 basis. Geological studies of bedrock and float samples indicate that high silver values present in the sandstones are caused by disseminations of a silver-bearing mineral, acanthite. These high silver values are from the same uraniferous boulders discovered in the late 1970's, but were only noted in 1982 after a detailed mineralogical study of the boulders was undertaken. Field work including an induced polarization survey was conducted over favourable areas in 1983 and work is expected to continue during 1984.

Westfield's regional office in Deer Lake will not be manned on a full time basis anymore but will apparently still be maintained for logistic support for field crews working in the province.

RPF Syndicate still holds some of the best areas for potash in western Newfoundland. No work was done in 1983. Work to date has not been conclusive in proving (or disproving) the existence of potentially economic potash deposits. The geological setting is favorable and large tonnages of common salt are present in the area.

Riocanex holds mineral claims in the southern end of the Codroy Valley. The company conducted geological and geophysical surveys during 1982-83. In early December, 1983, Riocanex drilled one vertical hole to asscess the potash potential of the area. Results have not been released at this time. However, we do not expect the company to be very active on this property in 1984.

Also in late 1983, the provincial Mines Branch in cooperation with the Earth Sciences Department of Memorial University drilled one vertical hole in the Bay St. George Carboniferous Basin exploring for coal. This work is part of a joint project funded by an EMR Canada grant to assess the coal, oil and

gas potential of southwestern Newfoundland. The project involves both office and field studies, with a large volume of geological and geophysical data being compiled.

Tillicum Resources actively explored in the Anguille Mountains during 1983. Work included geological mapping, geochemical sampling and prospecting. The company staked more claims in the area during November. This project is expected to be one of the more active in the province during 1984 and is prospecting for shale-hosted base metals. They have entered into an agreement with Getty on this property and will be managing an expanded program in the area this summer.

South Coast

Moving eastwards into the Newfoundland Central Mobile Belt, the main interest is primarily in base and precious metals.

Recently, New Venture Equities Limited of Toronto reached an agreement with the property owners to do an underground exploration program on the Isle aux Morts gold-silver base metals prospect.

New Ventures Equities, a private company, will be spending $500,000 over the next 18 months to gain a 100% working interest in a Newfoundland gold prospect.

New Ventures is acquiring the property from Rio Algom and Brinco, which together owned the property. According to the terms of the agreement, Rio Algom and Brinco will share a 5% net smelter return once the property is brought into production. Another firm, Phillips Management, will receive a 10% net profit interest after New Ventures has recovered its exploration and development costs.

According to New Venture Vice-President Pierre Lassonde, reserves already outlined total 600,000 tonnes with an average value of 0.26 oz. of gold per tonne and 0.5 oz. silver. The company has plans to drive a 600-foot adit to intercept the deposit 200 feet beneath the surface. The zone runs parallel to the slope of a hill in the Cape Ray fault zone, about 30 km northeast of Port aux Basques.

Previous exploratory drilling was done to a depth of 500 feet. Mr. Lassonde says further reserves are possible along strike and at depth. If the current reserves prove minable production could start as early as next year with a possible 250-tonne per day capacity.

New Ventures is a private resource venture capital company affiliated with Beutel Goodman.

Utah Mines which was quite active in 1983 on its claims in southwestern Newfoundland will be back during 1984 although at a much reduced level. Over the past three years the company has done considerable ground survey work over its properties and has also conducted several diamond drilling programs.

B.P. - Selco have acquired more claims in the region during early 1984. The company is mounting a sizeable exploration program this year, particularly over its claims on the former Chetwynd fee simple (La Poile Bay area). The target here is precious and base metals. Presently, Selco is conducting a diamond drilling program on the property with further ground survey work expected to commence shortly.

Riocanex is expected to do more work on claims staked in response to Open File 1302 - Tungsten in lake sediment over granitoid rocks of south-central Newfoundand - a pilot study.

It is still uncertain as to whether there will be any company activity in the Granite Lake area. There was no work done in the area in 1983, however, large claim blocks are still held in this area on the site of a major lake sediment geochemical anomaly, but no concentration of commercial significance has been identified to date.

Central Newfoundland - Notre Dame Bay - Baie Verte Peninsula

In central Newfoundland, Noranda Exploration Company Limited will again be mounting a large exploration program in the Noranda-Price Joint Venture area southwest of Grand Falls - the Tally Pond project. Following up on encouraging diamond drilling results encountered in late 1982, Noranda staked a large number of new claims in this area. During 1983, Noranda conducted a variety of geological, geochemical and geophysical surveys in the area around the two shallow zones of massive sulfides discovered in 1982. A sizeable drilling program was also completed in the area in 1983 and the company expects to conduct more work, including diamond drilling, in 1984. Field crews have been in the area since early January of this year continuing with ground survey work.

It is still uncertain what Abitibi-Price's exploration efforts will be like in 1984. They were drastically reduced in 1983, with only a number of small programs being conducted on its mineral holdings. Most of its efforts were directed primarily toward the immediate Buchans area, in particular, the Maclean Extension underground work.

Canico (Canadian Nickel Company Limited) is not expected to be very active in central Newfoundland during 1984. The company's overall Canadian exploration budget has been cut back and the emphasis is being placed on essentially precious metal projects in central Canada.

Canico (Canadian Nickel Company Limited) conducted a sizeable exploration program in 1983 on its claims to the northeast of Noranda's Tally Pond claims.

In 1983, Canico had a moderately large field crew in the area conducting a variety of ground surveys. It concluded its 1983 program with a modest diamond drilling program. Canico is expected to be active in the area again during 1985.

It is expected that activity in north-central and Notre Dame Bay areas will be reduced from 1983 levels. Brinco Mining and joint venture partners will be continuing their efforts in western Notre Dame Bay in the Pilleys Island and Long Island areas, although at reduced levels.

Work by joint venture partners, U.S. Borax and Dupont Exploration on Lew Murphy's Handcamp and Gullbridge properties concluded during 1983. Lew Murphy is presently actively promoting these properties to several other mining companies.

Barry McHale (Tillicum Resources Limited) has recently staked claims to the west and northwest of Springdale covering some recently released Brinco ground. He also has claims over the old Lockport base metals property where he conducted some ground surveys last year.

Maritec Limited of Springdale will be conducting exploration work for Rupert Short of Lewisport on claims in the Moreton's Harbour area and on the Baie Verte Peninsula. The targets are precious metals.

Consolidated Rambler Mines is conducting a small mineral exploration program on the Baie Verte Peninsula at the present time. Work is mainly being done on the company's mineral holdings on the Peninsula.

Riocanex will again be active on its Burtons Pond claims this coming summer. Further ground surveys will be conducted on this potential precious metal project.

U.S. Borax has been active on ground acquired from Lew Murphy in the Mings Bight area this past spring. A geophysical program has been completed on the property and a small diamond drilling program will be carried out in early summer.

The West German Company which had shown some interest in the LaScie silica deposit as a source of high purity silica received some rather discouraging test results from bulk samples that were collected in 1983. Presently, other silica deposits in the province are being sampled so that tests can be made to assess their suitability.

Noranda Exploration Company Limited has recently staked claims over the old Betts Cove Mine on the Baie Verte Peninsula. The company's interest was aroused in the area when interesting gold values detected by a government mapping crew were released on open file in early spring. Noranda has also staked claims on a potential gold prospect on Western Indian Island near Fogo Island in eastern Notre Dame Bay. The company expects to conduct field work on this property during 1984.

Duval International Corporation has staked claims to the northwest of Grand Falls in the North Twin Lakes area. Duval expects to conduct follow-up ground surveys in this area during 1984.

Getty Metals, which holds claims to the southwest of Point Leamington, did very limited work on this project during 1983. It is uncertain whether the company will be active in this area in 1984.

Noranda Exploration Company Limited conducted some ground survey work in 1983 around the Point Leamington massive sulfide deposit that it discovered on Nalco ground in the early 1970's, in the New Bay Pond area north of Grand Falls.

This work has been continuing during early 1984 and it is expected that the company will be conducting a diamond drill program on the deposit during the year.

Bay D'Espoir Region

Rio Algom Exploration Inc. have entered a joint venture agreement with Esso Minerals on the Ackley City granite, which holds good potential for tin/tungsten mineralization. Rio Algom will have a survey party in the area later this summer.

Noranda Exploration is planning a follow-up program to last years preliminary survey on its claims on the Connaigre Peninsula. It is anticipated that Selco will be following up on its claims in the vicinity.

Kidd Creek plan to increase their efforts this year in their area north of Bay D'Espoir. They will have a crew of about 10 people in the area for the better part of the summer with a major program of bulldozer stripping in areas where soil geochemistry has been anomalous in tungsten.

Harry Tibbo of Tasu Resources has been working this winter to get a joint venture agreement in place on the Great Bend Chromite Pros-

pect. It is not yet known if he has signed a deal; should he, it will mean a major program on the property this year.

A large part of the Nalco concession in this area is coming open on the 21st of May. This may spark some staking activity and should certainly attract some reconnaissance work to the area this year.

Avalon - Burin Peninsulas

Tasu Resources still has a property in the Winterland area; they will be conducting further work at this location. Tasu may pick up additional ground on the Burin when the Nalco concession comes open on May 21st. The results of Selco's drill program at Hickeys Pond did not produce positive results; however, the area generally still holds good potential for gold mineralization and is worthy of further work. Likewise the ground held by Apex has not produced any dramatic results. The former Nalco concession as well as other areas on the Burin hold good potential for barite and it is anticipated that this commodity will be the focus of some activity this year.

On the Avalon Peninsula, barite is the main commodity of interest. Eagle Resources are presently removing barite from the Colliers Point property by open pit method. They have to extract an additional 3,000 tons of material by the end of May to fill contract committments. The company is presently appraising the potential of its other barite properties on the Avalon. Newfoundland Minerals plans a modest program in the vicinity of their pyrophyllite mine in hopes of finding new reserves of that commodity. Tasu Resources has proposed a second drill program for its LaManche lead prospect; it is not certain if this work will be conducted this year. Lewis Murphy's claims near Holyrood are due to expire in the near future; he was unable to attract joint venture exploration capital to the property.

Labrador

Only two companies are active in Labrador this year. In the west Labrador Mining and Exploration Company Limited continues its exploration program on its holdings in responce to the Impost Act. Saarberg plan a six to eight week survey on their claims in the Moran Lake area. Their program will employ roughly an 8 to 10 man party and will be a continuation of last year's program. It is not known if Brinco plans any work in the area; it is doubtful that any major program will be undertaken by the company this year.

Update May 1984
MINING OPERATIONS
IN NEWFOUNDLAND AND LABRADOR

MINING

1983 was a mixed year. There were more employment cutbacks and some reduction in production of iron ore in Labrador by Iron Ore Company of Canada. However, Wabush Mines increased production and there were significant production increases on Newfoundland island, particularly at Flintkote, Asarco and Baie Verte Mines.

In recent years, the provincial mining industry has been the leading contributor to the provincial gross domestic product and, until 1981, provided direct employment for nearly 7,000 people. The slump in 1982 caused a drop in the provincial gross domestic product, and the number of people directly employed in the mining industry dropped to about 4,200 in 1983.

Western Labrador, which is the most important mining area of the province, is also the most important iron ore mining area of Canada. In 1983, it contributed 87% of this province's total value of mineral production and 52.5% of Canada's iron ore. For three consecutive years, 1979-81, the value of iron ore was around $1 billion. For 1982, the value was $572,386,000. For 1983, the value was up slightly to $601 million.

The preliminary value of all mineral production for 1983 was $690,400,000, about 7% above the $646,800,000 value in 1982. Metals other than iron accounted for $44,436,000, the largest single contributor being zinc from Newfoundland Zinc Mines Ltd. Nonmetals increased significantly, contributing $22,272,000 compared to $14.7 million in 1982. The value of structural and aggregate resources (sand, gravel, cement and bricks) was $22,580,000 in 1983 compared to $18,261,000 in 1982.

IRON ORE COMPANY OF CANADA

In 1982, IOCC produced about 12.7 million long tons of concentrate at the Carol Project, of which 6.1 million were further processed into pellets. 1983 production was about 11.8 million long tons, 6.2 million of which were pelletized. It is expected that 1984 production will be 11,954,000 tons of which about 6,514,000 tons will be pelletized with a total production value of $464,731,955.

Layoffs at IOCC from June, 1982 to the end of 1983 totalled 1148. This figure does not include people who retired or went on long-term disability. The workforce at IOCC decreased to 1464 at the end of 1983 and continued to decline to a low of 1440 by March 31, 1984. The company began a recall in April and as of May 8, 1984, employees totalled 1466 and is expected to level off at 1500 by mid-June. There are no shutdowns or further layoffs planned for 1984.

WABUSH MINES

In 1982, production at Wabush Mines was 3.25 million long tons of iron ore concentrates. Production for 1983 was about 4.1 million long tons of con-

centrates, an increase of 26%, but still about 2 million below capacity. The forecast for 1984 is 5.6 million tons, an increase of about 36%.

The company had a seven-week shutdown during the summer of 1983, affecting both its Wabush mining operations and its pellet plant in Point Noire, Quebec. It is expected that there will be no shutdowns during 1984, except for a possible six day shutdown at Christmas.

Layoffs at Wabush Mines in terms of percentage of the workforce have not been as severe as at IOCC. The average workforce in 1982 was 750. The workforce at the beginning of 1984 was 620. As of May 4th, it has grown to 650 and is expected to increase by another 10-15.

ASARCO - BUCHANS UNIT

On January 28, 1983, Asarco Inc. ceased operations at its Buchans base metals mine and mill. However, the mine was maintained on a standby basis and was reactivated within 5 months, with employees being recalled as of June 13, 1983. The reactivation was said to be for a one-year trial period.

The processing of ore started on September 1, 1983. The mill was operating two twelve-hour shifts, three days per week, and processed 1000 tonnes of ore per day (capacity is 1200).

Mining is being conducted on a two-shift per day schedule, five days per week. Mine development is being conducted on a two-shift per day basis in the area of the Maclean Extension orebody.

The current workforce is 175 employees.

For 1983 the estimated amount of ore milled was 42,000 t, for a value of $1,260,000.

The management at the plant are meeting with other Asarco officials on May 9, 1984 to discuss the future of the operation.

Barite Operation

The Buchans mill was modified in 1980-81 to produce barite in addition to the base metal concentrates. In 1982, barite was produced on a seasonal basis for Baroid of Canada, which marketed the product to offshore drilling companies. None was produced in 1983 but further production is expected after markets are obtained.

The amount of barite produced in 1982 was 4,241 t.

The future of Buchans depends upon: (1) the success of the current reactivation; (2) the demand and price for base and precious metals in the near future; and (3) the success of exploration in the area.

GENSTAR FLINTKOTE

This gypsum open-pit mine is operated by Flintkote Holdings Ltd. and is situated at Flat Bay in western Newfoundland. The mine was in operation from May 1 to December 9 in 1983. Production for the year was 595,000 t. This was a 24% increase over 1982 production, which was 479,920 t. Eighteen shipments, totalling 612,000 t of gypsum, were made during the year. An on-site wash plant which produces gypsum from the tailings produced 75,000 t in 1983. Most of the gypsum was consumed by wallboard plants owned by Genstar (the owner of Flintkote) in the U.S. Some (about 5%) was used locally for gyproc wallboard and cement manufacturing at Corner Brook, NFLD.

About 65,000 t of anhydrite were sold to the Paul Blum Co., U.S.A., in 1983 and were used in the cement industry.

This operation employed 90 people during 1983 and is expected to reach 100 in 1984. Production for 1984 is forecast to be between 500,000 and 700,000 tonnes.

During the fall and winter, 50 employees were involved in stripping of 600,000 t of overburden. The mine/mill operation began again in April and no shutdown is planned until the regular one in the fall.

NFLD. MINERALS LTD.

Newfoundland Minerals Ltd., which operates the pyrophyllite open-pit mine at Manuels, Conception Bay, also maintained seasonal production in 1983. Production started on June 1 and ended on Sept. 29. Shipments for the year totalled 35,547 tonnes. This was an increase of 49% over 1982 shipments, which were 23,781 tonnes. The pyrophyllite is used in the production of ceramic tile and related products by the Olean Tile Company in Pennsylvania. Some lower grade materials are used locally in paint and plaster production by Standard Manufacturing Company in St. John's, Newfoundland.

During the production period, the workforce totalled 31, eight less than 1982. During the winter, the workforce was reduced to 10 for a winter stripping program. Production will begin again June 1, 1984 and the operation will employ a total of 30 people. This year's production is expected to reach 50,000 tonnes compared to 26,000 tonnes last year.

NFLD. ZINC MINES LTD.

Production for 1983 was 566,000 tonnes of ore, and 57,000 t of concentrate, about the same as 1982. Nfld. Zinc had no downtime during the recent recession. Ore reserves are expected to be exhausted by mid-1986 unless new reserves are discovered by the ongoing drilling. Recently discovered extensions added about two years to the initially projected life of the operation.

This underground mine was opened in 1975 and the current workforce is 169 people, approximately the same as 1982.

TRINITY BRICK PRODUCTS LIMITED

Shale is quarried on Random Island for the manufacture of brick at Milton, near Clarenville. The rated capacity of this plant is approximately four million bricks per year. The plant, originally the Pelley operation, has been in operation since 1866 (with intermittent shutdowns). The entire production is for local markets (NFLD.).

The workforce has been relatively steady at about 30 employees. The company will take its annual shutdown from mid-January to April, 1984. The potential for increased sales of brick is excellent. The company recently upgraded the facilities at a cost of approximately $250,000. Capacity has been increased by 10%. The plant operated at close to full capacity during 1983. The outlook for 1984 calls for full utilization of the facility. As of May 8, 1984 production is as usual and markets for 1984 look good. Twelve new kiln cars have been installed, bringing the total to 100. There are presently 27 people employed at the site and three in the St. John's office.

BAIE VERTE MINES INC.

Baie Verte Mines Inc., a subsidiary of Transpacific Asbestos Ltd., reactivated the former Advocate asbestos operation in September, 1982.

Employment increased steadily throughout 1983 from about 150 early in the year to 300 towards the end. In September, the company went on a 3-shifts per day, 5 days per week operation in the mill. The mine is also on three shifts, 5 days per week, but for waste removal only.

Production at Baie Verte depends entirely on success in securing orders for asbestos fiber. Orders placed in 1983 totalled 44,106 tonnes of fiber. There are an additional 9,992 tonnes of probable sales and 6,155 tonnes of possible sales for a total of 60,213 tonnes. Shipments for 1983 totalled 31,296 tonnes of fiber.

Relatively high waste to ore removal ratios and the need to maintain cash flow and secure markets for its fiber are the main challenges facing this mine.

There were approximately 300 employees at the beginning of 1984. A dock strike in India has delayed the fulfillment of orders and the workforce was reduced to 126 when the company stopped mining on April 19th. The company is presently in a poor cashflow situation and is concerned about the mine's future.

DUNVILLE MINING

Dunville Mining Company operates, on a seasonal basis, a silica quarry at Villa Marie, Avalon Peninsula. This operation was established, on a deposit discovered and proven by the Newfoundland Government in the late 1960's, to supply the silica requirements of the ERCO plant at Long Harbour, and is operated under a quarry lease held by ERCO. The silica is used as a flux in the electric reduction of phosphate rock. Other markets are being assessed.

Production in 1983 was 136,000 tons; projected production in 1984 is estimated at 150,000 tonnes. As of May, 1984, this operation is maintaining the status quo.

NORTH STAR CEMENT

North Star Cement Ltd. operates limestone and shale quarries at Corner Brook. These two products are used in the production of cement at the cement plant in Corner Brook.

North Star's present capacity is 130,000 tonnes per year.

Production increased by 57% in 1983 to 88,000 t from 56,000 t in 1982. The plant shutdown at the end of January and 30 fulltime employees were laid off. The company carried out an extensive repair program this winter. Employment was increased to 90 people in April and will increase to 100 when production begins again in mid-May. Production this year is expected to be between 70,000-75,000 t. A two-week vacation shutdown is planned for the end of July and possibly another in October.

COLLIER POINT BARITE

Eagle Resources Ltd. of Scottsdale, Arizona, has acquired the mining rights to this barite deposit from the Rendall Estate. Some mining was done in 1983 and about 1800 t of ore were produced. A jig was installed for separation of the barite.

The mine is now operated by Hynes Construction of Dunville. Production began in late April; however, there are no estimates on production levels or barite orders for 1984.

SAND AND GRAVEL

Sand and gravel production for Newfoundland is quite significant in terms of amounts produced. Accurate statistics have not been kept until recently.

Statistics for 1983 show the following:

Production - 2.9 million tonnes
Value - $9,320,000

In 1981, 102 quarry permits were issued by the Department of Mines and Energy. In 1982, 110 quarry permits were issued and, in 1983, 173 were issued. There were 1,300 employed in this industry in 1982 for a total of 239,200 manhours worked.

Some of the larger producers of aggregate in the province are:

Lundrigans - Corner Brook
Lundrigans - White Hills (Atlantic Concrete)
Pennecon - St. John's
Concrete Products - St. John's

Prepared by Brian Collins, Dennis Davis and Rex Gibbons, Newfoundland Department of Mines and Energy

SELECTED STATISTICAL DATA

THE MINERAL INDUSTRY

EXPLORATION

ONSHORE MINING EXPLORATION ACTIVITY BY PRIVATE MINING & EXPLORATION COMPANIES

SELECTED YEARS	CANADIAN DOLLARS	NO. OF CLAIMS STAKED	NO. OF CLAIMS IN GOOD STANDING
1949	$ 736,000	271	258
1954	1,540,000	3	
1959	15,665,000	40	
1964	2,626,000	105	
1969	5,711,000	20	
1974	6,349,000	1,455	2,304
1979	13,000,000	6,255	14,560
1980	13,300,000	13,099	20,772
1981	16,033,000	13,661	25,012
1982	12,615,000	4,670	18,517
1983	8,000,000 (P)	4,522	15,288

GROSS VALUE OF MINERAL PRODUCTION

SELECTED YEARS	GROSS VALUE OF MINERAL PRODUCTION IN CANADIAN DOLLARS
1949	$ 27,584,000
1954	42,898,000
1959	72,157,000
1964	182,153,000
1969	256,936,000
1974	448,473,000
1979	1,124,520,000
1980	1,042,577,000
1981	1,030,263,000
1982	646,762,000
1983	690,366,000 (P)

(P) - Preliminary

DEPARTMENT OF MINES AND ENERGY

NAME	PHONE NO. (737-)	SECTION	LOCATION
ANDREWS, Ken	2773	Mineral Lands & Mines	2nd Floor, 95 Bonaventure
ANDREWS, Wayne	2776	Energy Policy	2nd Floor, 114 Empire
BLACKWOOD, Christine	3322	Quaternary Geology	Howley Building
BLACKWOOD, Frank	2769	Nfld. Mapping	4th Floor, 95 Bonaventure
BRAGG, Dan	2753	Quaternary Geology	2nd Floor, 95 Bonaventure
BURKE, Ewart	3352	Geochemistry	Howley Building
BUTLER, Jim	2769	Geochemistry	4th Floor, 95 Bonaventure
BYRNE, Kenneth	2956	Cartography	1st Floor, 114 Empire
CANDY, Jonathan	2411	Energy Policy	3rd Floor, 114 Empire
COCHRANE, Stewart	686-2054	Core Storage	Pasadena
CODY, Eileen	3660	Administration	3rd Floor, 95 Bonaventure
COLEMAN, John	2411	Energy Policy	3rd Floor, 114 Empire
COLEMAN-SADD, Steve	2769	Nfld. Mapping	4th Floor, 95 Bonaventure
COLLINS, Brian	3197	Mineral Policy	2nd Floor, 95 Bonaventure
CROKE, Felix	3660	Administration	3rd Floor, 95 Bonaventure
DAVENPORT, Peter	2769	Geochemistry	4th Floor, 95 Bonaventure
DAVIS, Dennis	3197	Mineral Policy	2nd FLoor, 95 Bonaventure
DAWE, Jeff	3352	Geochemistry	Howley Building
DAWSON, Karen	3660	Administration	3rd Floor, 95 Bonaventure
DEAN, Paul	2769	Mineral Deposits	1st Floor, 95 Bonaventure
DICKSON, Lawson	2769	Nfld. Mapping	4th Floor, 95 Bonaventure
DOWNEY, Debbie	3159	Publications & Info.	3rd Floor, 95 Bonaventure
DRISCOLL, Don	2411	Energy Programs	3rd Floor, 114 Empire
DRISCOLL, Mary	2768	Secretary (ADM Mines)	3rd Floor, 95 Bonaventure
DROVER, John	2411	Energy Programs	3rd Floor, 114 Empire
FINCH, Barbara	2766	Secretary (Minister)	3rd Floor, 95 Bonaventure
FLEMING, John	2768	ADM Mines	3rd Floor, 95 Bonaventure
FOST, Eva	2776	Energy Programs	2nd Floor, 114 Empire
GAMBERG, Denise	2769	Publications & Info.	4th Floor, 95 Bonaventure
GIBBONS, Rex	3159	Publications & Info.	3rd Floor, 95 Bonaventure
GOVER, Noel	2773	Mineral Rights	2nd Floor, 95 Bonaventure
GOWER, Charlie	2769	Labrador Mapping	4th Floor, 95 Bonaventure
GREENE, Bryan	2763	Mineral Development	5th Floor, 95 Bonaventure
GRAHAM, Phil	2411	Energy Programs	3rd Floor, 114 Empire
HANNON, Harold	2773	Mineral Lands	2nd Floor, 95 Bonaventure
HARRIS, Alvin	2672	Core Storage	Torbay Airport
HARRIS, Alvin	2769	Publications & Info.	4th Floor, 95 Bonaventure
HAYDEN, Jo	2411	Energy Programs	3rd FLoor, 114 Empire
HERINGA, Jo	2776	Energy Conservation	2nd Floor, 114 Empire
HOWSE, Ambrose	2769	Mineral Deposits	1st Floor, 95 Bonaventure
HURLEY, Brian	3197	Mineral Policy	2nd Floor, 95 Bonaventure
HUTCHINGS, Arch	2776	Energy Policy	2nd Floor, 114 Empire
HYNES, Byron	3197	Mineral Policy	2nd Floor, 95 Bonaventure
INKSTER, Douglas	2765	Energy Policy	3rd Floor, 95 Bonaventure
JAMES, Brenda	2773	Mineral Lands & Mines	2nd Floor, 95 Bonaventure
JANES, Joanne	2773	Mineral Lands & Mines	2nd Floor, 95 Bonaventure
JONES, Brenda	3197	Mineral Policy	2nd Floor, 95 Bonaventure
KEAN, Baxter	2769	Mineral Deposits	4th Floor, 95 Bonaventure
KIPNIS, Norman	2773	Mineral Lands & Mines	2nd Floor, 95 Bonaventure
KIRBY, Fred	2753	Quaternary Geology	2nd Floor, 95 Bonaventure
KIRBY, Rosanne	2769	Mineral Deposits	1st Floor, 95 Bonaventure
KNIGHT, Ian	2769	Nfld. Mapping	3rd Floor, 95 Bonaventure
LEONARD, David	2957	Cartography	1st Floor, 114 Empire

NAME	PHONE NO. (737-)	SECTION	LOCATION
MAHON, Doreen	3159	Publications & Info.	3rd Floor, 95 Bonaventure
MARTIN, Gary	2773	Mineral Lands & Mines	2nd Floor, 95 Bonaventure
MATHUSZ, Sabrina	2411	Energy Policy	3rd Floor, 114 Empire
McCONNELL, John	2769	Geochemistry	4th Floor, 95 Bonaventure
McDONALD, Carolyn	3660	Registry	3rd Floor, 95 Bonaventure
McKILLOP, John H.	2766	Deputy Minister	3rd Floor, 95 Bonaventure
MEEHAN, Randy	2769	Publications & Info.	4th Floor, 95 Bonaventure
MERCER, Norman	3159	Publications & Info.	3rd Floor, 95 Bonaventure
MEYER, Jamie	2769	Mineral Deposits	1st Floor, 95 Bonaventure
MINISTER	2920	MINISTER'S OFFICE	3rd Floor, 95 Bonaventure
MISSAN, Harjit	2301	Geochemistry	5th Floor, 95 Bonaventure
MORGAN, Judy	2769	Publications & Info.	4th Floor, 95 Bonaventure
MORRISSEY, Ferd	3197	Mineral Engineering	2nd Floor, 95 Bonaventure
MURRAY, Jane	3159	Publications & Info.	3rd Floor, 95 Bonaventure
NEWHOOK, Charity	2411	Energy Programs	3rd Floor, 114 Empire
NUNN, Ges	2769	Labrador Mapping	4th Floor, 95 Bonaventure
O'BRIEN, Agnes	3660	Accounts	3rd Floor, 95 Bonaventure
O'BRIEN, Deb	3660	Accounts	3rd Floor, 95 Bonaventure
O'BRIEN, Sean	2769	Nfld. Mapping	4th Floor, 95 Bonaventure
O'DRISCOLL, Cyril	2769	Mineral Deposits	1st Floor, 95 Bonaventure
PALTANAVAGE, Anthony	2957	Cartography	1st Floor, 114 Empire
PARSONS, Rod	2411	Energy Programs	3rd Floor, 114 Empire
PARSONS, Sidney	2301	Mineral Development	5th Floor, 95 Bonaventure
PATEY, Catherine	3159	Publications & Info.	3rd Floor, 95 Bonaventure
PEAVY, Doreen	2763	Mineral Development	5th Floor, 95 Bonaventure
PEDDLE, Caroline	2765	Energy Policy	3rd Floor, 95 Bonaventure
POWER, Genie	3159	Publications & Info.	3rd Floor, 95 Bonaventure
RICKETTS, Jerry	2753	Quaternary Geology	2nd Floor, 95 Bonaventure
RILEY, Charles	3375	Geochemistry	Howley Building
RYAN, Bruce	2769	Labrador Mapping	4th Floor, 95 Bonaventure
RYDER, D. Wayne	2301	Mineral Development	5th Floor, 95 Bonaventure
SHEPPARD, Maurice	3197	Mines Management	2nd Floor, 95 Bonaventure
SKANES, Herb	3322	Geochemistry	Howley Building
SNELGROVE, Barbara	2411	Energy Programs	3rd Floor, 114 Empire
SPARKES, Byron	2750	Quaternary Geology	2nd Floor, 95 Bonaventure
STOCKROOM	2677	Building 46	Torbay Airport
STRICKLAND, Bev	3159	Publications & Info.	3rd Floor, 95 Bonaventure
SULLIVAN, John	2773	Quarry Materials	2nd Floor, 95 Bonaventure
TAYLOR, Allister	2776	Energy Policy	2nd Floor, 114 Empire
THOMAS, Andy	2769	Labrador Mapping	4th Floor, 95 Bonaventure
THOMPSON, Beverly	3312	Geochemistry	Howley Building
TOBIN, Norman	2411	Energy Audit	3rd Floor, 114 Empire
TRICKETT, Eugene	2776	Energy Audit	2nd Floor, 114 Empire
TUCKER, Bernice	3660	Administration	3rd Floor, 95 Bonaventure
TUTTLE, Wayne	896-5162	Field Operations	Goose Bay
VANDERVEER, Douglas	2750	Quaternary Geology	2nd Floor, 95 Bonaventure
VARGHESE, Mary	2411	Energy Library	3rd Floor, 114 Empire
WAGENBAUER, Hank	3312	Geochemistry	Howley Building
WARDLE, Richard	2769	Labrador Mapping	4th Floor, 95 Bonaventure
WHELAN, Kevin	3660	Administration	3rd Floor, 95 Bonaventure
WINSOR, Alex	2776	Energy Policy	2nd Floor, 114 Empire
YOUNG, Terry	2301	Mineral Development	5th Floor, 95 Bonaventure